EARTH RESOURCES DATA PROJECT

(Original Title: State Landsat Capacity Project)
NASA Contract # NASW-3140

Final Report
for the period:
August 1, 1978 to September 30, 1979

(E80-10092) EARTH RESOURCES DATA PROJECT N80-23719
Final Report, 1 Aug. - 30 Sep. 1979
(National Governors Association/Council of)
96 p HC A05/MF A01 CSCL 05B Unclas
G3/43 00092

prepared for the
National Aeronautics and Space Administration
NASA Headquarters
Washington, D.C. 20546

by the
Council of State Planning Agencies
444 North Capitol Street
Washington, D.C. 20001

February 1980

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CSPA EARTH RESOURCES DATA PROJECT Final Report
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1.0 INTRODUCTION

1.1 Background

Since 1972, the National Aeronautics and Space Administration (NASA) has developed the experimental Landsat Program into a viable source of data for state natural resource programs, and also has developed important technology transfer activities, some of which are available to states. The Regional Remote Sensing Applications Program initiated by NASA a few years ago provides states with opportunities to receive technical training in Landsat applications.

Many state-sponsored organizations were involved in the program from its inception. The National Conference of State Legislatures, Pacific Northwest Regional Commission and Southern Growth Policies Board, for example, have worked with NASA to inform states of potential Landsat applications, and to assess the needs of states for satellite remote sensing data. Many state applications projects emerged in response to these expressed needs.

The increasing interest of states and other users in Landsat as a major data source available for resource management, the growing demand for an operational system to guarantee data continuity and timeliness, as well as the planned improvements in the technology with future generations of satellites has made it important that a number of issues be addressed if the tremendous capacity of the technology is to be fully realized by states. In addition, most discussions of Landsat previously centered on the procurement and application of the data for state programs. The potential of this technology as one tool to support the formulation and implementation of a Governor's policy agenda for natural resources has not yet had adequate attention.

As a consequence of these trends and pressures, the Council of State Planning Agencies (CSPA), in consultation with the National Governors' Association (NGA), initiated the Earth Resources Data Project. This effort is designed to complement

other activities underway by NASA, the National Conference of State Legislatures (NCSL) and other groups to provide information and technical assistance to states on remote sensing and related natural resources data technology. In addition, CSPA has begun to focus on the implications of this technology to those natural resources issues of importance to the states. Specifically, the project is responding to the following needs:

- for an ongoing process for information needs assessment relative to the changes in satellite technology,
- for better information exchange on the role of Landsat in state programs, especially in relation to a Governor's policy agenda for natural resources, and
- for state services to assist in developing the capacity of states to use Landsat technology, and to help orient state officials to potential uses in state natural resources program and policy areas.

The National Governors' Association was founded in 1908 as the National Governors' Conference. NGA is the instrument through which the Governors of the fifty states and the territories collectively influence national policy and apply creative leadership to state problems. NGA provides technical assistance to state executive officials and serves as a vehicle for sharing innovative program information among states.

The Council of State Planning Agencies was founded in 1966 as the vehicle for improving planning in state government, and for collective action by state planning agencies and executive policy staff on issues of state and national concern. CSPA is an affiliate of the National Governors' Association and provides policy research and technical assistance to the planning and policy staff of the nations's Governors.

1.2 Goals and Objectives for the Project

The goals for the Earth Resources Data Project are:

- the establishment of a process under the auspices of the National Governors' Association and the Council of State Planning Agencies
  - to identify issues associated with state use of remote sensing and related natural resources data,
  - to improve coordination of actions taken on those issues by the states and NASA,
  - to promote communication between NASA and the states.
- the development of services that would promote better use of remote sensing and natural resources data by states.

The specific objectives of the project are the following:

- Provide a focal point for the identification and coordination of immediate and long-term needs of state and local resource agencies for remote sensing technology.
- Prepare recommendations to NASA on the needs of states for data, applications research, and information system capabilities associated with satellite remote sensing technology development.
- Exchange information on state applications and experiences using Landsat with state Governors and other key policy and planning officials, and organizations representing state and local government.
- Identify and prepare recommendations on intergovernmental data coordination needs, particularly as required to enhance the value of Landsat data use.
- Identify and pursue unique opportunities to incorporate the use of remote sensing technology into operational state programs.
- Perform evaluation and provide recommendations concerning existing NASA technology transfer and user assistance activities.
- Use the Earth Resources Data Council (ERDC), comprised of state representatives, to advise the project and provide the states perspectives as required for key activities and decisions concerning the evolving Landsat program and related activities.

1.3 Project Organization

The endorsement of the project by Governor Lamm, Chairman of NGA's Committee on Natural Resources and Environmental Management (Appendix A) formalized the executive organization for the project in two ways:

1. CSPA, an affiliate of NGA, was designated as the agent for the National Governors' Association on Landsat matters and to administer the NASA contract, and

2. This project will be under the policy direction of the NGA Committee on Natural Resources and Environmental Management.

In this way, both Governors (and their staff) and state planning officials form the constituency to whom information is distributed--and from whom input is sought--on Landsat and other related technology issues. This endorsement is especially important for conduct of tasks 1 (Long Range Work Plan), 4 (User Communications/Information Flow) and 7 (...User Awareness and Technology Transfer Agent).

The subcontract to the Council of State Governments provided for two studies that supported tasks 1 (Long Range Work Plan) and 5 (Improvement of States Capacities for Landsat Applications). These studies are discussed in section 2.5.

1.4 Summary of Accomplishments

Major accomplishments of the project for the first year include:

- establishment of an active Earth Resources Data Council to provide a needed process for state communication and feedback on data-related issues, such as Landsat-D, two executive policy studies related to operational remote sensing satellite system, the Five Agency Inventory Project, and recommendations on S. 663 and S. 875.

- adding to the CSPA State Planning Information Report (a quarterly newsletter) information on Earth Resources Data, and

- establishing working relations with several federal programs and with other state organizations.

In addition, the following areas were recognized as needing improvement:

- Newsletters. Three basic types of information need to be distributed: (1) ERDC news, (2) technical news--on state programs, new technology, and federal programs, and (3) policy news--relative to legislation and other policy initiatives. Existing newsletters of CSPA, NGA and NCSL tend to specialize in policy news. Technical news in particular needs to be expanded. A format to expand distribution and project visibility will be developed.

- Relationship to NGA. The Natural Resources and Environmental Management Committee of NGA is primarily focused on energy issues. Ties with the Environmental Management Subcommittee will be established.

- Agenda setting and work assignments. Ongoing issues and activities of the project and of the Data Council need clearer definition and

priorities/schedules established for action. Data Council members will be assigned specific topics on which to report at the Data Council Meetings.

2.0 ACCOMPLISHMENTS

2.1 Task 1 - Long Range Work Plan

The project staff and the Earth Resources Data Council formulated the draft Long Range Work Plan (Appendix B) as a major agenda item at Council meetings (see also Appendix C). The conceptual orientation of the CSPA/NGA project is "policy and issue" related--to distinguish this project from work performed by NCSL (oriented to legislation and state legislatures) and CSG (supporting research and case studies). Important background material for the Long Range Work Plan discussed at these meetings includes:

Local Government. It is unrealistic to think that the needs of local governments will be adequately represented by this project. For example, the Data Council is composed of only state personnel. Appropriate concerns for this project, however, would be (1) to consider the logical state/local relationship on data issues, and (2) to establish informal communication with public interest groups concerned with local governments, as needed.

Network Concept. This project was conceived with the idea that an effective communication network of interested and knowledgeable state people would improve state/federal data coordination. The Data Council members were selected to form the core of this network; each one chosen to represent a different federal region. The regional focus should make it easier to relate to federal agencies that divide their activities on these boundaries--or some aggregate of these regions.

Balancing the Project Scope. CSPA has an agreement with NASA to consider Landsat in the context of state needs for natural resources data. States are interested in Landsat because their needs for all types of natural resources data are increasing, especially data that will help cut costs.

2.2 Task 2 - Landsat Users Advisory Panel

The advisory panel for this project was coordinated with Governor Lamm, Chairman of NGA's Committee on Natural Resources and Environmental Management (Appendix A), and appointed by the President of CSPA. Coordination was further assured by including Paul Tessar, Director of the NCSL Remote Sensing Project

and a representative of Governor Carroll, the NGA Chairman as ex-officio members of the panel. The Chairperson for the panel was Ms. Sally Bay Cornwell, Director of the Environmental Data Center in the Governor's office in California. The panel was named the "Earth Resources Data Council" to emphasize the broad issue of developing state capacity to use all kinds of natural resources data, including Landsat. This project recognizes that without compatible natural resources data, Landsat and other satellite remote sensing products cannot be effectively used by states.

Because of the organizational relationships discussed in section 1.3, the Earth Resources Data Council has two functions: (1) perform as a staff advisory group to NGA's Committee on Natural Resources and Environmental Management on Landsat-related natural resources data policies, and (2) be the sole agent for CSPA on natural resources data issues.

The Earth Resources Data Council activities this current year included:

1. Three meetings (Appendices C-1, C-2, C-3),
2. A Charter for the Data Council (see Appendix C-3 for final charter),
3. Statement and recommendations on proposed legislation to create an operational Landsat System provided at the request of the Senate Committee on Commerce, Science and Transportation (Subcommittee on Space, Science and Technology)(Appendix D), and
4. Recommendations for Landsat-D system parameters requested through NASA's Technical Users Working Group (TUWG). (Appendix E).

Membership of the Data Council and the informal 50-state network used to assist the Council in providing the states perspectives on remote sensing and related natural resources data issues are listed in Appendix C-4.

2.3 Task 3 - State Requirements for the Operational Landsat System

Support was provided by the project staff and the Earth Resources Data Council at the request of several activities attempting to define state requirements for an operational system. These included:

1. Ongoing staff involvement from the White House Office of Science and Technology (OSTP), Intergovernmental Science, Engineering and Technology Advisory Panel (ISETAP) in executive policy studies related to establishing an operational civilian remote sensing satellite system (Appendix C), and
2. Senate Committee on Science, Technology and Transportation hearings on proposed legislation to create an operational system. (Appendix D).

In addition, project staff monitored the progress of Landsat-D and thinking on future satellite systems that could be candidates for the operational system. Input to NASA's Technical Users Working Group (TUWG) on Landsat-D was provided on this basis (Appendix D).

2.4 Task 4 - User Communication/Information Flow

Four editions of CSPA's State Planning Information Report were distributed during the project period that included articles on project activities and important earth resources data issues (Appendix F). Approximately 300 copies of each newsletter were distributed to state planning and policy officials. In addition, project announcements were made in several existing newsletters--NGA's The Resource, NCSL's Remote Sensing, and also the regional newsletter from NASA/ Goddard Space Flight Center, Reflections. A project summary (Appendix G) including Earth Resources Data Council membership also was distributed to approximately 600 selected individuals from NGA and CSPA mailing lists.

One original part of this task, an information brochure on Landsat for state policy officials, was postponed until the second contract period when it was determined that there would not be adequate funding to support it during the current year.

2.5 Task 5 - Improvement of States' Capacities for Landsat Applications

Several studies were conducted during the contract period to document existing state capacities to use Landsat. These included four draft case studies undertaken by project staff (Attachments 1-4) and a study subcontracted to the Council of State Governments (Attachment 5). The four case studies described state use of Landsat in federally supported state programs: (1) Water Quality Management Planning (EPA 208), (2) Surface Mining and Reclamation, (3) Coastal Zone Management, and (4) Comprehensive Planning (HUD 701). The CSG study, Integrated Use of Landsat Data for State Resource Management, explored the relationship of Landsat use and the development of state natural resources information systems.

One observation of these studies is that states with the ability to coordinate data holdings and share analysis capabilities between programs are most likely to be building operational Landsat capabilities. One effective coordination mechanism is sometimes called natural resources information system or environmental data center. Therefore, some attention will be spent in future project activities to assist states in building these institutional frameworks where they will encourage successful Landsat programs.

One additional study subcontracted to CSG, State Information Needs for Resource Management, was designed in part to identify the highest priority natural resources issues of states (Attachment 6). Recognizing these issues will help guide the project's efforts via the Long Range Work Plan to provide appropriate state services and related capacity building activities.

One part of this task, a Landsat Critical Issues Workshop, was not attempted for several reasons. Holding a workshop before the CSG studies were complete was felt to be premature. Also, the Data Council meetings could in fact be considered mini-workshops to discuss these issues. Another important factor in the decision not to hold a workshop, was that it was not specifically funded. In lieu of this activity, effort was made to build a sound Data Council and state network as an ongoing process for establishing priority needs.

2.6 Task 6 - Intergovernmental/Interagency Coordination

This first year, the project initiated coordination activities with several related projects and federal activities. Besides active day-to-day coordination with NCSL's Remote Sensing Project, NCSL's Project Director was appointed an ex-officio member of the Earth Resources Data Council. The project also coordinated with staff of the Intergovernmental Science, Engineering and Technology Advisory Panel of the President's Office of Science and Technology Policy. Other activities, which the project began to monitor included the Five Agency Project on Classifications and Inventories of Natural Resources (USGS, BLM, USFWS, USFS, and SCS) and the proposed National High-Altitude Aerial Photography Program (see Appendix C).

Project activities were also coordinated with NASA activities, including the Regional Remote Sensing Applications Program and the Landsat-D Technical Users Working Group.

2.7 Task 7 - User Awareness Role and Technology Transfer Agent

The Project Director visited eleven states during the current year. In two states, Illinois and Delaware, the project staff participated in Landsat orientation activities with staff from NASA's Eastern Regional Remote Sensing Applications Center. The other visits were usually made for more than one objective such as to conduct case studies to document Landsat use as well as to discuss project activities with as many state officials as possible. A synopsis of state visits is shown below:

Type of Visit	States Visited
Landsat Orientation/Outreach (with NASA-ERRSAC)	Illinois, Delaware
CSPA consultation visits*	Maryland, Texas
Case Studies/Project Outreach	Kentucky, South Dakota, Minnesota Louisiana, Florida, Georgia, Texas, New Jersey

3.0 CONCLUSIONS

The NGA/CSPA Earth Resources Data Project has achieved several important objectives this first year. Most important of these is the creation of the Earth Resources Data Council as the nucleus for a flexible, two-way communication process between NASA and the states on Landsat and related natural resources data issues. The following Table 1 lists other important project accomplishments.

Work on the Long Range Work Plan led to continuation of project activities in fiscal year 1980. Table 2 lists activities proposed for the second year. One important new activity proposed is the addition of two types of state services: remote sensing orientation workshops and state resource teams with experience in state Landsat applications.

Through the Data Council and with the addition of state services, the Earth Resources Data Project looks forward to continuing to assist NASA in transferring Landsat and related technology to states. CSPA recognizes that Landsat is an important new tool in the spectrum of remote sensing and other data needed to address important natural resources and environmental issues in the states.

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* assisted other CSPA projects where discussions included state natural resources information systems or use of science and technology in policy formulation.

Table 1. EARTH RESOURCES DATA PROJECT Accomplishments (First Year)

- EARTH RESOURCES DATA COUNCIL
  - 3 MEETINGS
- STATE REQUIREMENTS FOR THE OPERATIONAL LANDSAT SYSTEM
  - EXECUTIVE POLICY STUDIES (SUPPORT TO ISETAP REPRESENTATIVE)
  - TESTIMONY FOR SENATE HEARINGS
  - TECHNICAL USERS WORKING GROUP (TUWG) FOR LANDSAT D
- USER COMMUNICATIONS/INFORMATION FLOW
  - NEWSLETTER
- STATE CAPACITY FOR LANDSAT APPLICATIONS
  - SURVEY OF STATE REMOTE SENSING APPLICATIONS IN FEDERAL GRANT PROGRAMS
  - STATE NATURAL RESOURCES INFORMATION SYSTEMS/DATA CENTER CONCEPT
    - SPECIAL STUDIES BY CSG Integrated Use of Landsat Data for State Resource Management; State Information Needs for Resource Management
- INTERGOVERNMENTAL/INTERAGENCY COORDINATION
  - MEETINGS: including ISETAP, NCSL TF, NASA Advisory Groups, individual federal agencies and policy studies
  - FIVE AGENCY INVENTORY PROJECT
- USER AWARENESS ROLE
  - State Visits: Illinois, Delaware, Maryland, Kentucky, South Dakota, Minnesota, Louisiana, Florida, Georgia, Texas and New Jersey

Table 2. EARTH RESOURCES DATA PROJECT Proposed Activities

- EARTH RESOURCES DATA COUNCIL
- REPRESENTATION OF STATE USER INTERESTS
  - LANDSAT D/TUWG
  - OPERATIONAL SYSTEM TRANSITION PLANNING
- NEWSLETTER/INFORMATION EXCHANGE
  - NEWSLETTER
  - INFORMATION BROCHURE
- SPECIAL STUDIES
  - REFERENCE CATALOGS: Remote Sensing Satellites, State Remote Sensing Programs, and Federal Natural Resources Data Programs
  - CONCEPT PAPER: Potential for a national Census of Natural Resources
- STATE SERVICES
  - ORIENTATION WORKSHOPS
  - SPECIAL RESOURCE TEAM VISITS

APPENDIX A

State of Colorado

EXECUTIVE CHAMBERS

DENVER

RICHARD D. LAMM
Governor

October 17, 1978

Mr. Peter Vanderpoel, President
Council of State Planning Agencies
444 North Capitol Street, N.W.
Washington, D.C. 20001

Dear Mr. Vanderpoel:

Based upon discussions between our staffs and the proposal to the National Aeronautics and Space Administration, I would like to endorse the NGA-CSPA Project to provide services to states and NASA regarding the Landsat program and related issues.

I understand the proposal includes seven major tasks:

Task 1 - Prepare a Long Range Work Plan

Task 2 - Formation of a Landsat Users Advisory Panel

Task 3 - Define State and Local Requirements for the Operational Landsat System

Task 4 - User Communications/Information Flow

Task 5 - Improvement of States' Capacities for Land Applications

Task 6 - Intergovernmental/Interagency Coordination

Task 7 - Take Necessary Follow-Up Action and Perform On-Going Role of User Awareness and Technology Transfer Agency

The report State and Local Government Perspectives on a Landsat Information System, which was recently completed by the Intergovernmental Science, Engineering and Technology Advisory Panel (ISETAP) Natural Resource and Environment Task Force, which I chair, should provide a good foundation for the NGA-CSPA Project.

Leonard Slosky of my staff will serve as staff liaison to the project in order to represent me and to coordinate with the NGA Committee on Natural Resources and Environmental Management.

I have been consulted by Bob Wise in the formation of the advisory council for the project and feel that the people you have in mind would be most appropriate. I also concur that Sally Cornwell would make an excellent chairperson. I would like to suggest that Leonard be added to the advisory council (in an ex-officio position if you prefer) to maintain close contact with me and the NGA Natural Resources Committee. I think that it would also be advisable to include Paul Tessar, Project Director of NCSL's Remote Sensing Project as an ex-officio member to take advantage of his great experience in this area and to help coordinate NGA's and NCSL's Landsat efforts.

With this endorsement, the Council of State Planning Agencies, under the direction of the Committee on Natural Resources and Environmental Management, is hereby designated as the agency of the National Governors' Association for Landsat matters.

Please feel free to contact Leonard Slosky for any assistance which I may be able to provide.

Sincerely,

Richard D. Lamm, Governor
Chairman, National Governors' Association
Committee on Natural Resources and
Environmental Management

cc: Governor Busbee
Governor Brown
Ed Helminski
Bob Wise
Senator Roland Redlin
Representative Tom Anderson
Paul Tessar

bcc: John Lay
Alex Tuyahov

APPENDIX B

NGA/CSPA EARTH RESOURCES DATA PROJECT
DRAFT LONG RANGE WORK PLAN

1.0 INTRODUCTION

1.1 Project Scope

The Earth Resources Data Project was initiated in August 1978 by the Council of State Planning Agencies (CSPA), in consultation with the National Governors' Association (NGA), and by the National Aeronautics and Space Administration (NASA). The scope of the project centered on Landsat--the remote sensing satellite developed by NASA--and related technology as important new tools in the context of state needs for natural resources data. Most discussions of Landsat had focused on the application of Landsat to state programs. The potential of this technology as a tool to support the formulation and implementation of a Governor's policy agenda for natural resources also needed adequate attention. Specifically the project was responding to the following needs:

- for an ongoing process for assessment of information needs relative to the changes in satellite technology,
- for better information exchange on the role of Landsat in state programs especially relative to a Governor's policy agenda for natural resources, and
- for state services to assist in developing the capacity of states to use Landsat technology, and to help orient state officials to potential uses in state natural resources program and policy areas.

As the project has matured, the scope has been broadened to include state needs for all types of natural resources data, of which Landsat and related technology are one part. To accomplish this, additional support is being sought from other federal agencies. This shift in emphasis, though not great, is important because it is recognized that Governors and their state policy and program officials need a wide range of data, and rarely deal directly with one data type. Rather, these officials relate to "issues and policies" of state and national concern. Important issues include coastal zone management, surface mining and reclamation, environmental quality, and management of renewable resources, such as forest, range and agriculture. It is only in the context of these issues that "data" is important to states.

An important rationale for this approach is the opportunity to provide more balanced services to state officials, and to reach a greater audience with information. Landsat and related technology will remain an important part of the project. However, attention will also be given to improving the institutional arrangements that encourage state investment in cost-effective technology, and to improving opportunities for state input to a variety of federal activities impacting state data needs.

1.2 Project Goals

The overall goal for the Earth Resources Data Project is to encourage the application of appropriate science and technology to key state and national resources issues and problems. Project goals or long-term objectives, around which the project is designed are the following:

- the establishment of a process under the auspices of the National Governors' Association and the Council of State Planning Agencies
  - to identify issues associated with state use of remote sensing and related natural resources data,
  - to improve coordination of actions taken on those issues by the states and appropriate federal agencies,
  - to promote communication between federal agencies and the states.
- the development of a full range of services that would promote better use of remote sensing and natural resources data by states, including technical assistance, information dissemination and research to examine natural resources policies and issues.

2.0 ONGOING PROJECT TASKS

2.1 Conceptual Design

The outline in Fig. 1 organizes project tasks into two basic areas: (1) State-Federal Relations, and (2) State Services. This conceptual design highlights the two-way communication or state-federal liaison as the major project role.

Figure 1. NGA/CSPA EARTH RESOURCES DATA PROJECT - Draft
Outline of the Long Range Work Plan

I. STATE-FEDERAL RELATIONS

A. Earth Resources Data Council - state planning and program officials selected from each of the ten standard federal regions as the nucleus of a communication and advisory network for the project, representing the states on intergovernmental natural resources data issues.

B. Federal Data Coordination - monitoring and providing state input to key natural resources data issues and programs, such as

1. Operational Remote Sensing Satellite System
2. Five Agency Inventory Project
3. Proposed National High-Altitude Photography Program
4. general attention to remote sensing and related issues in the areas of Agriculture, Coastal Zone Management, Water Resources, Mineral Resources, etc.

C. Technology Transfer - monitoring and encouraging federal efforts to provide technical assistance to states, such as

1. NASA Technology Transfer Program
2. others, as appropriate

D. Federal Research - monitoring and providing state input to federal research agendas and programs, such as

1. Landsat D and NASA applications research programs
2. Five Agency Inventory Project research activities
3. others, as appropriate

II. STATE SERVICES

A. Technical Assistance - providing opportunities for states to gain more information on remote sensing and related technology.

1. Orientation Workshops
2. Resource Team Visits

B. Information Services - reporting what's happening at the state and federal levels related to project activities.

1. Newsletter
2. Information Brochures/Information Items as needed
3. Information assistance and referral on request

C. Special Studies/Documentation - providing products for state use.

1. Workshop Proceedings
2. Reference Catalogs as needed
3. Concept Papers as appropriate
4. State Needs Assessment/Data Use Surveys

2.2 Approach to Implementing the Long Range Work Plan

CSPA has adopted a phased appraoch to implementing the full range of tasks outlined in Figure 1. The implementation of objectives initiated during the first phase of the project, those added during the second phase and proposed activities for the third phase are included in the following discussion:

Phase 1. The major objectives for the start up phase were: (1) to establish the Earth Resources Data Council, under part I, as the major process for obtaining state input on issues relating to Landsat and related technology; (2) to initiate other activities under part I. State/Federal Relations related to Landsat; (3) to initiate under part II. State Services--the newsletter, other information services, and some surveys of Landsat use and state information needs.

Phase 2. The major objectives for the second phase are: (1) to continue the Data Council and establish an informal fifty state network, from which to obtain input on remote sensing and other natural resources data issues; (2) to continue Landsat related activities under part I. State/Federal Relations; (3) to add natural resources data issues, such as the Five Agency Inventory Project as project resources are available; (4) to continue information services and project documentation under part II. State Services; and (5) to initiate new State Services--especially orientation workshops, resource team visits, and reference catalogs and concept papers related to State use of natural resources data.

Phase 3. The major objectives for the third phase are: (1) to continue the Earth Resources Data Council and the informal fifty state network; (2) to continue appropriate existing activities relating to Landsat and natural resources data issues under part I. State/Federal Relations and part II. State Services; and (3) to add in-depth examination of one or more representative natural resources programs and issues, such as Coastal Zone Management or Agriculture, for an assessment of state information needs and alternative cost-effective strategies to satisfy those needs.

This phased approach represents a logical and manageable progression to examine Landsat and related data in the context of key natural resources issues of state and national concern.

3.0 CONCLUSIONS

This draft of the Long Range Work Plan is compiled from discussions with Earth Resources Data Council members, with NASA, NGA, and CSPA staff and with individuals from other public interest groups during the first year of project work. This plan presents a realistic scope and role for the project in the context of the missions of NGA and CSPA*. In addition, this plan provides a framework in which federal agencies such as NASA and the Five Agency Inventory Project, can disseminate information to the states on their activities and receive informed, coherent input. This project is also making maximum use of resources by coordinating with public interest groups through information sharing and joint efforts wherever possible.

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*The National Governors' Association was founded in 1908 as the National Governors' Conference. NGA is the instrument through which the Governors of the fifty states and the territories collectively influence national policy and apply creative leadership to state problems. NGA provides technical assistance to state executive officials and serves as a vehicle for sharing innovative program information among states.

The Council of State Planning Agencies was founded in 1966 as the vehicle for improving planning in state government, and for collective action by state planning agencies and executive policy staff on issues of state and national concern. CSPA is an affiliate of the National Governors' Association and provides policy research and technical assistance to the planning and policy staff of the nation's Governors.

APPENDIX C-1

Minutes for the NGA/CSPA Earth Resources Data

Council Meeting, January 17-18, 1979, in Denver, Colorado

Council members attending were:

Sally Bay Cornwell, Chairperson	California, Region 9
Paul Cunningham	Idaho, Region 10
Dennis Malloy	Vermont, Region 1
Donald Yaeger	Minnesota, Region 5
John Antenucci (representing Ed Thomas)	Maryland, Region 3
Bruce Rado	Georgia, Region 4
David Ferguson	Texas, Region 6
Leonard Sloskey	Colorado, Region 8
Ex-Offico Members:	
Paul Tessar, Director	NCSL Remote Sensing Project
Dr. W. A. Franklin	Representative of NGA Chairman, Gov. Carroll (Kentucky)
Others:	
Bob Wise	CSPA
Peggy Harwood	CSPA
Bill Schneider, Jr.	CSG
Ron Hogan	NCSL
Becca Smith	NCSL
Mary Arbogast	NCSL
Dick Weinstein	NASA Headquarters
Dale Lumb	NASA/Ames
Bill Padrick	NASA/Ames
Philip Cressy	NASA/Goddard
Wayne Mooneyhan	NASA/ERL
Dr. John Estes	NASA Headquarters/UCSB
Mike McCormick	Washington State/PCAA

The meeting was convened in the NCSL Conference room by the Chairperson, Sally Bay Cornwell, about 9:30 a.m. Following welcome and introduction of Data Council members and others present, Sally Cornwell reviewed some incentives for initiating the NGA/CSPA Earth Resources Data Project and organizing the Council. Foremost in everyone's experience, especially in California, has been the tightening of federal and state budgets at the same time that requirements for natural resources data at the state level have increased. Sally expressed a desire for expanded state-federal partnership in order to assure adequate natural resources data to all users in a cost-effective and timely manner.

Appreciation was given for efforts such as the Intergovernmental Science, Engineering and Technology Advisory Panel (ISETAP) to the office of the President, and the National Conference of State Legislatures' Remote Sensing Project that pulled together state views on Landsat and related issues on which the Data Council

can build. It was noted that state participation in these efforts is usually frustrating but also can be correlated with modest results. The Regional Remote Sensing Applications Program of NASA is an example of a program that in part resulted from NCSL recommendations that NASA recongnize the needs of states for special training and project support.

Dick Weinstein, who manages the Regional Remote Sensing Applications Programs at NASA Headquarters, next reviewed recent "technology transfer" efforts at NASA. He pointed out that there have been some inprovements at NASA Headquarters. A new office of External Affairs has been organized with a branch devoted to state and local relations. Also the office of Applications has been reorganized into the Office of Space and Terrestrial Applications. Included within this office is the Technology Transfer Division that has as its program goal: the achievement of the maximum socio-economic benefits from (proven) NASA technology, by the private and public sectors. The Technology Transfer Division includes the former Technology Utilizations Program (renamed "Terrestrial Applications" and best known for its "Spin-off" efforts) as well as the remote sensing application of Landsat. Under the Remote Sensing component are found the following activities: Various efforts to define user requirements, the Applications System Verification and Transfer (ASVT) Programs, the Regional Application Programs, and University Applications. Dick indicated that--besides state information networks being developed through the regional centers, NCSL and NGA--NASA also is building an information network directed towards industry. One important information outlet of the Technology Utilization Program is COSMIC which is authorized to sell software developed with NASA funds. In addition to seven Industrial Applications Centers, there are also two experimental State Technology Application Centers (STAC) in Kentucky and Florida, designed to help states with non-remote sensing technology. There are no current NASA plans to extend Industrial Application Centers or STACS to new locations. Consequently, the most active technology transfer projects with states involve remote sensing (Landsat) demonstration projects--and most are handled through the three Regional Centers. Other field centers are, however, involved in cooperative research programs with several states. Although now working almost exclusively with Landsat multispectral scanner (MSS) technology, there are plans to expand transfer activities to other remote sensing technology, such as the RBV images also available from Landsat-3. Two Landsat-related activities, originally targeted for the early 1980's, were the achievement of (1) "integrated state planning" capability (state use of geographic information systems technology), and (2) commercial capabilities to provide services to states. Both of these have become higher priorities due to the continued interests of states and industry. NASA expects the user community to become self sustaining with respect to Landsat MSS Technology within the next few years.

Paul Tessar, Director of the NCSL Remote Sensing Project, briefed the other Data Council members with the history and accomplishments of the NCSL project. For many years this project has provided a significant opportunity for states to comment on their needs for Landsat-type data and to keep informed of developments in this technology. Notable accomplishments have included (1) the formation of the Landsat Remote Sensing Task Force composed of state legislators: (2) numerous Landsat orientation workshops for states and their legislators: (3) the brochure: "A Legislator's Guide to Landsat:" and (4) the monthly "Remote Sensing" Newsletter. The NCSL project also has continued to work closely with the NASA Regional Centers advising them on various aspects of working with states. Paul was confident of a constructive partnership

between NCSL and the NGA/CSPA Earth Resources Data Project, and was looking forward to representing NCSL and as ex-officio member of the Data Council.

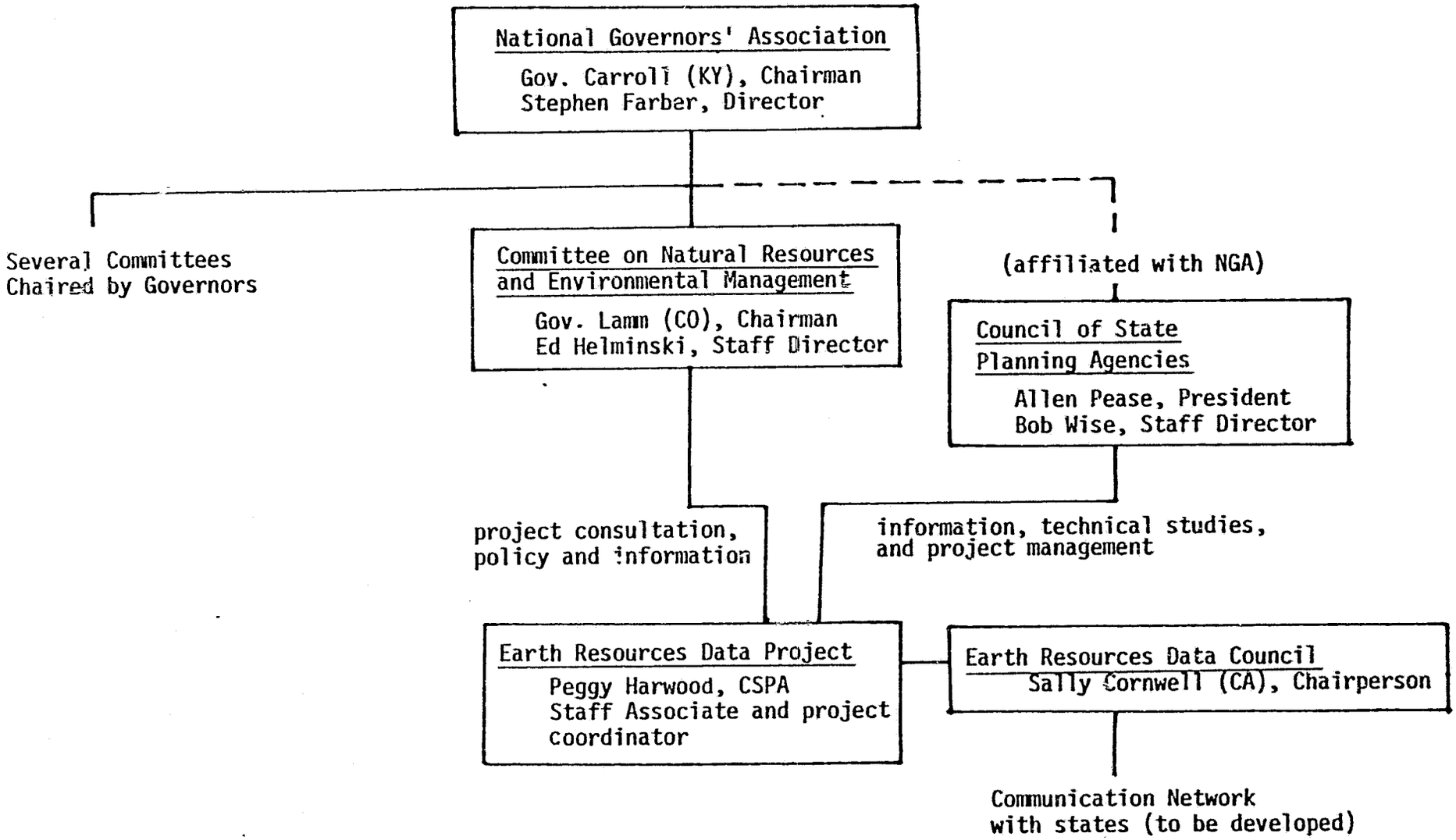
Additional background information for the NGA/CSPA project was provided by Bob Wise, CSPA Staff Director. Bob recognized the contribution of Ed Helminski who was the person responsible for both NCSL's and NGA's involvement with Landsat and NASA. Ed is currently heading up NGA's Energy and Natural Resources Program and is staff director for the NGA Committee on Natural Resources and Environmental Management. Governor Lamm, Chairman of that NGA committee (Natural Resources) designated CSPA as the entity to advise NASA on Landsat-related issues and to administer the NASA contact. Because of these organizational arrangements (illustrated on the attached diagram) the Data Council will have two functions: (1) perform as a staff advisory group to NGA's Committee an Natural Resources and Environmental Management on Landsat-related natural resources data policies, and (2) be the sole agent for CSPA on natural resources data issues. Bob emphasized that the conceptual orientation of the CSPA/NGA project was "policy and issue" related--to distinquish this project from work performed by NCSL (oriented to legislation and state legislatures) and CSG (supporting research and case studies). Bob then touched on some other items as important background material--what was meant by local government involvement, by the network concept for the Data Council and the broader scope of the project than just Landsat:

Local Government. It is unrealistic to think that the needs of local governments will be adequately represented by this project. For example, the Data Council is composed of only state personnel. What would be appropriate objectives for this project, however, would be (1) to consider the logical state/local relationship on data issues, and (2) to establish informal communication with public interest groups concerned with local governments, as needed.

Network Concept. This project was conceived with the idea that an effective communication network of interested and knowledgeable state people would improve state/federal data coordination. The Data Council members were selected to form the core of this network; each one chosen to represent a different federal region. The regional focus should make it easier to relate to federal agencies that divide their activities on these boundaries--or some aggregate of these regions.

Balancing the Project Scope. CSPA has an agreement with NASA to consider Landsat in the context of state needs for natural resources data. States are interested in Landsat because their needs for all types of natural resources data are increasing, especially data that will help cut costs.

Sally Cornwell next introduced a draft charter for the Data Council. Council members agreed that a simple statement of scope, goals and objectives, organizational structure and responsibilities would be helpful in guiding long-term Council activities and as general information on the Council. It was decided that specific


National Governors' Association
Gov. Carroll (KY), Chairman
Stephen Farber, Director
Several Committees
Chaired by Governors
Committee on Natural Resources and Environmental Management
Gov. Lamm (CO), Chairman
Ed Helminski, Staff Director
(affiliated with NGA)
Council of State Planning Agencies
Allen Pease, President
Bob Wise, Staff Director
project consultation, policy and information
information, technical studies, and project management
Earth Resources Data Project
Peggy Harwood, CSPA Staff Associate and project coordinator
Earth Resources Data Council
Sally Cornwell (CA), Chairperson
Communication Network with states (to be developed)

objectives for involvement of the Data Council in the NGA/CSPA project with NASA and other projects should they develop--would be included as attachments to the Charter.

The Council also discussed how the communication network with states would be formed and who would be contacted in each state. Suggestions for state contacts included individuals who have worked with NASA Regional Remote Sensing Centers and the NCSL Remote Sensing Project. In addition, there were some state contacts designated by governors for the Intergovernmental Science, Engineering and Technology Panel (ISETAP) study on "State and Local Government Perspectives on a Landsat Information System." It was agreed that it would be most appropriate for Governor Lamm (Chairman of NGA's Committee on Natural Resources and Environmental Management) to send a letter requesting each governor to select a state contact for the Earth Resources Data Council. The letter would include a short summary of the project, the purpose of the Data Council including the concept of regional representation and identifying each regional representative. The letter could also include information on previous state contacts as well as NASA projects within each state and a single NASA contact for NASA technology transfer activities for the governor and his staff. The letter should be phrased to emphasize that a state contact is desired who will actively work with their state and with the Data Council.

The Council then considered how membership on the Council would be changed to allow for vacancies and rotation among states in each region. Although the ideal model for the Council would be self-selection within the region, this was not considered to be practical initially. It was agreed that annual appointment of members (with thought to preserving continuity) by the CSPA President in consulation with the Chairman of NGA's Committee would provide the most flexibility. Vacancies in Council membership would be filled as they occured in the same manner, with preference given to state contacts in that region.

Attachment 1 is the revised draft charter for the Data Council based on these discussions.

Bill Schneider from the Council of State Governments reviewed the proposals for research studies being conducted for the NGA/CSPA - NASA project: (1) "Integration and Coordination of Landsat Data: State Natural Resource/ Environmental Management Information Needs," and (2) "State Government Environmental Resource Information Network." Council members expressed concern that both papers were too broad in scope for the time available. Discussions of the proposal on Wednesday afternoon and Thursday morning led to the following conclusions:

1. The scope of paper #1 should focus on state Landsat use integrated with existing state information systems. Other issues proposed originally, such as the university/state government gap, could be investigated when visiting states for case studies, but there would not be enough time to adequately address them in the report. A revised work plan should be sent to the Data Council for review.

2. A case studies approach was considered useful and practical within the six month time frame (to July 1979) for paper #1. Data Council members should be consulted when states were selected for case studies.

3. The scope of paper #2 should be more clearly defined and a revised proposal sent to the Data Council.

4. Concern was expressed over the utility and relevance of this proposed information system to the project and the Council. The paper should address the continued role of the Data Council in the communication network designed by CSG.

5. The Data Council concured that a survey of states for categories of environmental data and information used in state data systems would be a very interesting product. The questionaire sent to states should be coordinated with the Data Council.

In the interest of time, all correspondence should be directly between Bill Schneider and Council members.

Leonard Sloskey next reviewed the importance of the President's Space Policy and proposed Congressional legislation for an operational Landsat system. Leonard, the Data Council member from Region 8, also serves part-time as Staff Director for the Natural Resource and Environment Task Force of the Intergovernmental Science, Engineering and Technology Advisory Panel (ISETAP). He coordinated preparation of the ISETAP report, "State and Local Government Perspectives on a Landsat Information System" that was published last June. The report included recommendations for improving Landsat for state and local government use, that for the most part were not addressed in the summary of the President's Space Policy released to the public in October 1978. The actual Space Policy is classified because it addresses military satellites and national security as well as civilian uses. One result of the Space Policy was to initiate two interagency studies chaired by NASA. One study would examine the possibility of having an integrated satellite remote sensing system, while the second study--co-chaired by Commerce--would examine the market potential for private sector involvement in an operational civilian system. Leonard indicated that he probably would be invited to represent ISETAP on these studies; if so, this would provide an opportunity for state needs to be considered. The Data Council agreed to support Leonard in this important effort, as he might request their assistance.

The most promising opportunity for having an operational Landsat system appears to be legislation that will be re-introduced to Congress this Spring by Senator Stevenson. Leonard indicated, on a chart distributed to Data Council members, how two bills introduced last session--one by Schmidt, the other by Stevenson--and the President's Space Policy compared to ISETAP recommendations. By far the closest comparison to ISETAP was offered by the Stevenson bill. The Data Council concured with Leonard's analysis that the only major problem with the Stevenson bill was the data pricing issue. There is little hope, however, of being able to modify that policy--i.e., recovering all costs related to collection of satellite data within 5 years through charges to users for data. Unfortunately it is not known if this policy will result in a two-fold, a ten-fold or some unknown increase in prices. Hearings on the bill are tentatively scheduled for March 29 and 30, 1979. Copies of the Stevenson bill will be distributed to Data Council members when available.

At the end of the first day of the Council meeting, Leonard Sioskey arranged for an unscheduled briefing on the Colorado Geographic Information System by Lou Campbell, Colorado State Geographer and his staff. Although the preliminary design was not yet finished, some minimum design requirements were known: (1) that the system would need to be a hybrid system with the capability of going from cell to polygonal format and vice versa, and (2) that the system be able to maintain a reasonable digitizing speed, be reliable and have repeatable accuracy. Should funding be approved, they hope to acquire about $180,000 worth of peripheral equipment to implement the GIS.

The second day of the meeting was devoted to discussion of the long-range work plan for the NGA/CSPA project led by Sally Cornwell. Bob Wise suggested that the primary objectives of the project should be: (1) improving State-Federal Coordination of natural resources data, and (2) providing technical assistance and other state services related to improving state capacities for using natural resources data. Attachment 2 is a list of ideas generated by the Data Council to be included in the long-range work plan for achieving the project objectivies. A proposal based on these ideas and objectives will be submitted to NASA following coordination with and approval by the Earth Resources Data Council.

Two informational items were introduced before the end of the meeting. First was the announcement that the USGS had recently advertised in "Commerce Business Daily" an intention to accept bids for nationwide photo coverage from 40,000 feet--an item of interest to most states. Second, was a suggestion by David Ferguson, that some innovative funding concepts be explored to support state data centers. David cited an example from Texas, where the contract for Texas participate in the Corps of Engineers Dam Inspection Program included a data-collection component and an inspection component. By separating out the data component, they were able to identify and fund the cost of putting the data in the state data center--often a hidden cost to the state when participating in federal programs. Another idea involves placing a small severance tax on the exploitation of non-renewable resources to support a state data center. Ideas such as these could help expand badly needed capabilities in many states.

The meeting was adjourned about 12:30 p.m.

EARTH RESOURCES DATA COUNCIL

DRAFT CHARTER (First Revision)

General Scope

The Earth Resources Data Council will serve as an advisory panel to the National Governors' Association's Committee on Natural Resources and Environmental Management on natural resources data policy and as the nucleus of a communication network for the Council of State Planning Agencies representing the interests of states on intergovernmental natural resources data issues.

Goals and Objectives

1. Promote state involvement in federal natural resources data programs, ensuring that state needs are considered when federal data policies are formulated.

2. Provide for information exchange with states on natural resources data issues, sponsoring interstate communication as well as improvement in federal-state communication.

3. Support and strengthen state government opportunities for development and training in the use of cost-effecting new technologies related to natural resources data.

4. Provide advisory assistance regarding the development of private sector support to the states for acquiring and using natural resources data.

Organization Structure

The Chairperson of the Earth Resources Data Council and nine other members will be appointed by the President of CSPA in consultation with the Chairman of NGA's Committee on Natural Resources and Environmental Management. The ten Council members will be selected from key state policy offices in each of the ten standard federal regions. Council members should have a broad knowledge of state needs, be familiar with technology applications and reflect the needs and concerns of their region.

On ex-officio representive to the Earth Resources Data Council will be appointed by the Governor serving as Chairman of NGA. Other ex-officio representatives will be invited by the President of CSPA as required to provide technical expertise and facilitate coordination with other public interest groups with similar objectives.

Responsibilities

The Earth Resources Data Council, through CSPA, will provide information and submit recommendations on natural resources data policy to NGA's Committee on Natural Resources and Environmental Management. The Data Council also will oversee CSPA project activities concerned with natural resources data issues, and provide for information exchange with states.

In addition, members of the Council are responsible for:

- effectively representing their respective regions' views on Council concerns;
- attending all meeting of the Council'
- providing any necessary documentation of their states' expressed needs or conditions; and
- assisting in the identification of intergovernmental earth resources data issues.

EARTH RESOURCES DATA PROJECT
IDEAS FOR
LONG-RANGE WORK PLAN

FEDERAL/STATE RELATIONS

·Space Policy

S -operational civilian satellite remote sensing system
(S) -systems planning and development
-executive actions
S -legislative actions (legislation)

·Federal Data Coordinating Efforts

Concerns:

-data compatibility of federal programs
-federal use and acceptance of Landsat and other remote sensing data
-federal data/information systems
-specific data needs
-funding options/cost-sharing (e.g., specifically allocating small percent of 1) federal grants or contacts to "data", and 2) secerence taxes on extraction of non-renewable resources to "data" collection and handling).

Example of federal programs/projects to monitor:

S -5 Agency Coordination Efforts
-CEQ
-NOAA
-State Heritage Conservation Program
(S) -Reorganization of federal natural resources agencies
S -Proposal for nationwide aerial photography program
S -DIDS

·Technology Transfer

-Landsat
·Current list of project-NASA and independent users
·Private sector role (identify key players)
·Identify and monitor federal target areas, mtgs, key persons

·Research

-Agenda Setting
S -catalog of research in progress (such as SSIE automated information system on research in progress)

·STATE SERVICES

L ·Resource Catalog-clearinghouse
·Resource Teams to provide specific technical assistance to states

	•Research papers (CSG)
S	-GIS/Landsat (Case Studies)
"L"	-State use of Landsat (case studies) for federal programs
"L"	-State/University (case studies)
	•State awareness/outreach(w/NSCL and NASA Regional Centers)
S&L	-newsletters
S&L	-general overview/orientation
	-problem-solving on particular topics (policy or technical)

APPENDIX C-2

Minutes for the

NGA/CSPA EARTH RESOURCES DATA COUNCIL MEETING

March 29-30, 1979

Room 209, Hall of the States
444 N. Capitol Street, NW, Washington, D.C. 20001

Council Members attending were:

Sally Bay Cornwell, Chairwoman	California, Region 9
Chuck Guinn	New York, Region 2
Don Yaeger	Minnesota, Region 5
John Antennuci (representing Ed Thomas)	Maryland, Region 3
Dennis Malloy	Vermont, Region I
Bruce Rado	Georgia, Region 4
Paul Cunningham	Idaho, Region 10
Bernard Hoyer	Iowa, Region 7
Leonard Slosky	Colorado, Region 8
David Ferguson	Texas, Region 6

Ex-officio Members:

Paul Tesser	NCSL Remote Sensing Project
Dr. W. A. Franklin	Representative of NGA Chairman, Governor Carroll (Kentucky)

Others attending for all or part of the meeting:

Bob Wise	CPSA Staff Director
Peggy Harwood	CSPA Staff Associate
Ed Helminski	NGA Staff Director, Committee on Natural Resources and Environmental Management
Joan Simmons	NGA Staff Associate
Bill Schneider	CSG Senior Special Assistant
Floyd Roberson	NASA Headquarters, Director, Technology Transfer Division
Alex Tuyahov	NASA Headquarters
Dick Weinstein	NASA Headquarters
Darcia Bracken	NASA Headquarters
James J. Gehrig	U.S. Senate Committee on Commerce, Science and Transportation
Dr. Philip Cressy	NASA/Goddard, Director of ERRSAC
Dr. Vincent Solomonson	NASA/Goddard, Landsat-D Project Scientist
Darrel Williams	NASA/Goddard
Bill Watt	NASA/Goddard
Kathleen Young	NGA Center for Policy Research
Bob Smith	U.S. Fish and Wildlife Service
Paul Antill	U.S. Geological Survey
Jerome Gockowski	U.S. Department of Agriculture

THURSDAY, MARCH 29, 1979

Sally Bay Cornwell, Chairwoman of the Earth Resources Data Council, convened the second meeting with a short summary of the previous meeting and a review of concerns of states for adequate natural resources data--the underlying purpose for forming the Data Council.

Following introductions and welcome of visitors, Floyd Roberson who is Director of the Technology Transfer Division at NASA Headquarters briefed the Data Council on recent activities. Mr. Roberson pointed out the benefits of a group of informed state people such as this to his efforts and to NASA, and was looking forward to a long association with this organization. He was particularly cognizant of the interest of states in information systems--as a means to improve their ability to integrate different types of data to solve state problems. In this regard, Floyd noted that information systems represent an area in which states have shown interest with financial commitment and in which growth is rapidly occuring and can be expected in the future. Likewise, the efforts of NASA in the technology transfer process are hoped to generate a similar productivity. One can view the technology transfer process as having three parts: (1) library, (2) people, and (3) products. The process becomes more specific--funneled--as one proceeds from the library component that distributes reports to a general audience, to the focus on people through developing user requirements and awareness, to specific products generated by cooperative state-NASA projects and demonstrations. Each part of the process addresses fewer people with more specific applications and at a higher cost per unit. Several NASA technology transfer activities are related to this conceptual framework. One example is the Industrial Applications Center--primarily for industrial clients--that serve as repositories for technical reports and provide some training opportunities. NASA Regional Remote Sensing Application Centers, which work only with state applications, represent the program area most visible to the states.

Mr. Roberson also discussed some related activities in the Technology Transfer Division. Of concern to working with states, is the need to better understand existing program and funding relationships between states and federal agencies. In a preliminary study conducted by Darcia Bracken in his office, about $14 billion each year appears to be available to states for some environmental programs mandated by federal legislation--programs that could use Landsat-type data to assist implementation. These programs include EPA 208, Coastal Zone Management, HUD 701, the Dam Inspection Program and numerous others. Further examination of these relationships could help target NASA technology transfer resources in a way to complement the efforts of other federal agencies and increase available assistance to states.

Another activity proposed for the Technology Transfer Division in fiscal year 1980 is to initiate an Applications Data Service oriented to helping users find natural resources data (from satellites) available from federal agencies. The Service will develop and maintain catalogs, and will network with existing data bases such as maintained by NOAA, but will not maintain data or provide terminals to users. Eventually it is hoped that linkages can be established to non-remote sensing data bases, such as established for Census data, that are commonly used in conjunction with remote sensing data.

The technology transfer efforts of NASA do include a university component also. Admittedly, university grants do not equate as technology transfer to states. However, universities represent a long-term investment in training future state employees and in providing a potential resource for states that could be tapped when initiating Landsat activities.

Sally Cornwell thanked Floyd Roberson for sharing this information with the Council, and then recognized Paul Tessar, who distributed copies of the reprinted NCSL brochure: "A Legislators Guide to Landsat". This second edition sports a Landsat classification map of Hawaii on the front cover and should be as popular as the first edition. Extra copies are available by writing or calling Paul Tessar at NCSL.

Next on the agenda was a discussion of Senate bill 663--The Earth Resources Data and Information Act--introduced by Senator Stevenson (Illinois). Testimony on behalf of state views has been invited from Sally Cornwell as Chairwoman of the CSPA Earth Resources Data Council. The National Governors' Association, and the National Conference of State Legislatures also were invited to send representatives. In addition, a local government representative was invited through the Pacific Northwest Regional Commission. Sally Cornwell distributed a draft of her written testimony for review by the Data Council and opened a general discussion of the proposed legislation. Data Council members concurred with the urgent need for an institutional framework to exist for satisfying the needs of a growing operational user community. The states cannot rely on "hit or miss" products from an experimental system. Interest was shown in the potential competition that may develop with the French satellite, SPOT, planned for launch in late 1983 that would have increased resolution and faster delivery time. Data Council members also recognized the importance of an ongoing technology transfer program. Sally Cornwell emphasized the different pace with which states were adopting Landsat into their operations and the need for continuing documentation of this process. Floyd Roberson commented that only now is this technology transfer process understood to include federal agencies and their regional offices as a necessary and complementary part of working with the states. In this regard programs similar to the proposed Agriculture Initiative between NASA and the Department of Agriculture--if started several years ago--would have broadened the integration and use of Landsat in state and local governments as well. Jim Gehrig, staff member for the Senate Committee on Science and Technology, commented that because the U.S. does not have an operational satellite remote sensing system it is difficult to have broad use. What is lacking is commitment to provide products for a growing user community--after all, NASA is only chartered for R&D activities. The Data Council also expressed concern that greatly increased prices for data might reduce state and local government use. It is not clear how much more expensive the data will become if the total cost of the system--including the construction and launch of the satellite--must be recovered in data sales. Related to pricing is the issue of whether the satellite system will eventually be public or private. Data Council members concurred with the interin 7-year period specified in the Stevenson bill, in which the Service will be operated out of NASA before the final decision is made. The most common sentiment in Congress and OMB is that the private sector would be more efficient at operating the system. However, the concensus within the Data Council is that the operation of the system is in the public interest and should be part of the federal government. Bob Wise, CSPA Director, mentioned trends in the federal government toward a repetitive, ongoing census of natural resources. This is a national issue and one for which there is a growing need especially at the state level. He would not be at all surprised to see a natural resources census established within the next 10 years, similar to the program of the U.S. Bureau of the Census.

Sally Cornwell thanked Jim Gehrig for attending to answer questions and asked each member to review the draft testimony for later discussion.

Sally Cornwell next introduced Peggy Harwood who briefed the Data Council on the draft proposal for next year's work with NASA. Attending for this part of the discussion was Ed Helminski, Staff Director for NGA's Committee on Natural Resources and Environmental Management. As part of the discussion, Ed Helminski reviewed the

procedure by which the CSPA project and the Earth Resources Data Council would coordinate activities with his NGA committee, and especially forward recommendations for policy concerning Landsat and related data issues. Also discussed was the appropriate way to establish a network with all 50 states on data issues. Ed Helminski recommended that an informal network first be established in order to identify both interested state people and the different state agencies that wanted to be involved in future activities. Once this network was identified, the project should seek formal verification from each Governor that these individuals could speak for their state on natural resouces data issues.

Sally Cornwell thanked Ed Helminski for his guidance and information, and emphasized the desire of the Data Council to cooperate as fully as possible with his committee and with NGA operating procedures.

Following this discussion, the Data Council traveled to NASA-Goddard Space Flight Center in Greenbelt, Maryland, to see a demonstration of the Domestic Information Display System (DIDS) now under development there. The DIDS is a trial project in which 15 federal agencies have been contributing $50,000 each for NASA to integrate their statistical data into an automated geographic display system that appears especially useful for policy and budget formulation and analysis. The 15 cooperating agencies are: Bureau of the Census; Bureau of Labor Statistics; Community Services Administration; Department of Agriculture; Department of Energy; Department of Health, Education and Welfare; Department of Housing and Urban Development; Department of Justice; Department of Transportation; Department of the Treasury; Economic Development Administration; Environmental Protection Agency; National Oceanic and Atmospheric Administration; United States Geological Survey; and the Veterans Administration.

Next on the agenda for the afternoon was a presentation by Dr. Philip Cressy of the Eastern Regional Remote Sensing Application Center (ERRSAC). Dr. Cressy emphasized that working with states requires an understanding of the different components of state government. The major components include: state decisions (such as who makes them and important program areas), the organizational environment, existing facilities, and existing staff skills. In the experience of the Eastern Regional Center, all components must be understood in order to be able to assist with facility and skill development. Dr. Cressy measured progress in working with states in terms of numbers of briefings, demonstrations, state programs and training efforts underway or planned. Some thought is being given also to working with local governments in the eastern region. At present, ERRSAC is exploring ways to work with state agencies that have existing resource back-up roles with local governments--such as community affairs agencies. Sally Cornwell suggested that providing assistance to consulting firms that traditionally work with local governments also might be a way to "work with local government". NASA, as well as other federal agencies, understandably are intimidated by the sheer numbers of local governments. Dr. Cressy also mentioned the introduction of one-day workshops on modern remote sensing techniques that is proving to be very popular. There is some hope at NASA that such workshops might be a way to get the private sector involved. Leonard Slosky questioned whether the education role for universities was being pursued and encouraged. Dr. Cressy responded that the universities are viewed by NASA as providing primarily vocational training (or continuing education), and long-term professional training of future employees in government and industry.

Sally Cornwell thanked Dr. Cressy for the information on the Eastern Regional Remote Sensing Applications Center and for his observations for working with the states in his region.

Next on the agenda, Dr. Vincent Solomonson, Landsat-D Project Scientist, briefed the Data Council on the status of Landsat-D system design. The basic objective for the Landsat-D system is to ease the transition from low-resolution MSS data to the higher resolution thematic mapper-type of data. Especially important to most users will be the increase in data transmission rate from 15 megabits per second, that will be reflected in the 4-5X greater amount of data required to process a given area. At the present time, there are several system parameters for which the final option or configuration has not been chosen. These parameters include: (1) orbit configuration and (2) data tape products available, including the type of geometric correction(s) offered in terms of projections and resampling method used, and pixel sizes for MSS and thematic mapper data.

ORBIT. Landsat-D orbit, as well as all future satellites, will be at altitudes compatible with and accessible from the space shuttle. All of these altitudes are around 700 km as opposed to the 900+ km orbit of the current Landsats. Options are currently narrowed to "continuous" coverage in which adjacent scenes are collected the next day, and skip orbit in which adjacent scenes are collected at variable intervals. Because of the lower orbital altitudes being considered, the skip orbit offers the shortest interval between collection of the same scene of data.

DATA PRODUCTS. Most of the remaining decisions involve the data products that will be available to users from the EROS Data Center (EDC). Two types of tape products have been defined: (1) A tapes that have radiometric corrections only--essentially the same type of computer tape product available with Landsats 1-3, and (2) P tapes that have, in addition to the radiometric correction, some form of geometric correction. It is not yet decided whether the A tape or the P tape (or both) will go to the EDC in Sioux Falls, South Dakota. Tapes for thematic mapper data will be available for a quarter of an MSS scene. Project scientists do favor a geometric correction using the Space Oblique Mercator (SOM) projection and Cubic Convolution resampling. The SOM comes close to matching the Universal Transverse Mercator (UTM) projection favored by most users. States also use State Plane Coordinates that are plotted with either Lambert Conformal Conic or Transverse Mercator projections. NASA scientists understandably would prefer to avoid developing the software and resulting data products necessary to satisfy all potential user projections. Dr. Solomonson indicated that a thematic mapper research facility will be located at Goddard.

DATA DELIVERY. The design calls for delivery of data products from the satellite to EDC within two weeks, with the minimum average time being about 5 days. Goddard facilities should be able to handle 100 thematic mapper "A" scenes with 7 bands each per day, and 50 thematic mapper "P" tapes per day. At the same time, 200 MSS tapes--both A and P--should be processed each day. Landsat-D will have the capability to collect about 250 MSS scenes each day over the U.S. However, due to the greater volume of data required, only 50-100 thematic mapper scenes will be collected over the U.S. each day. The mechansm by which scenes will be selected for thematic mapper data has yet to be determined. Probably the Technical Users Working Group (TUWG), of which Paul Tessar and Peggy Harwood are members representing their respective organizations, will be part of the selection process.

Dr. Solomonson requested comments from the Data Council on the various options still to be considered. Sally Cornwell thanked Dr. Solomonson for the excellent briefing and for the opportunity to assist the process for selecting options remaining in the system design. The Chairwoman indicated that the Data Council will be responding to his request as soon as possible.

With several items still remaining on the day's agenda, Sally Cornwell continued the meeting with a discussion of the revised charter for the Data Council. In addition to some wording changes that would clarify the duties of members and ex-officio members, the Data Council voted to add a Vice-Chairman to conduct meetings in the absence of the Chairwoman. Bruce Rado was elected to the office of Vice-Chairman by a unanimous vote. In an effort to conserve time, Leonard Slosky volunteered to rephrase the objectives statement for the charter by the next meeting.

Leonard Slosky then informed the Council of a session on state use of satellite remote sensing that he has been asked to organize for the Annual Pecora Symposium in Sioux Falls, South Dakota, on June 13, 1979. Several members of the Data Council would be involved and all are invited to attend.

Leonard Slosky next reviewed two NASA-chaired studies--the Integrated Remote Sensing Satellite Study (IRS^3) and the Private Sector Involvement Study (PSIS)--on which he is participating as Staff Director for the Natural Resources and Environment Task Force of ISETAP. The Data Council has already received their copies of draft state requirements for satellite remote sensing data that were submitted to the IRS^3 following consultation with the Council. Copies of these requirements, tentatively given a priority assignment, were distributed to the Data Council for their review and comment. Leonard Slosky requested that members be prepared to discuss these draft priorities during the meeting tomorrow. He then distributed several information items related to future configuration of the Landsat-D system from the perspectives of NASA, Department of Interior and the Space Applications Board. Leonard Slosky also commented that briefings today on DIDS and the Landsat-D system were important background for the Council to help them develop a needed awareness of potential applications and new sensors being developed in satellite remote sensing technology.

Sally Cornwell thanked Leonard Slosky for this information and willingness to participate on behalf of the states in the two studies. Following a short review of the day's agenda, Sally Cornwell adjourned the meeting until the next morning at 8:30 a.m.

FRIDAY, MARCH 30, 1979

Sally Cornwell opened the second day of the Earth Resources Data Council meeting with two unfinished items from the previous day's agenda. First, Bill Schneider, Jr., briefed the Council on progress of the two Council of State Government (CSG) studies being conducted for the project. The most urgent item was a questionnaire that will be sent to all states within the next two weeks as part of the feasibility study for a state government data base on environmetal resource information. Following a brief discussion of the questionnaire, Bill Schneider asked the Data Council in what form they would like to see the responses from states. He indicated that questionnaires would be sent to heads of environmental agencies and state information systems primarily. All Data Council members requested copies of the list of state contacts within their region to whom questionnaires were sent, and summaries of the responses by region. In addition, all Data Council members, except Bernard Hoyer, wanted to see copies of the returned questionnaires from their region. Bill Schneider indicated that he would need a large block of time for discussion of the draft CSG papers at the next meeting.

The second item postponed from the previous day was consideration of the priority assessment of state requirements for satellite remote sensing data that would be submitted to IRS^3 by Leonard Slosky. Following discussion and revision of each

requirement's priority assignment, the Data Council concurred with the priority designations reached in the meeting. Leonard Slosky then emphasized the importance of responding to Dr. Solomonson's request for comments on the Landsat-D system technical options, and that there also is still a need to address issues such as timeliness and cost. Leonard requested that any comments of Data Council members on important unresolved issues be conveyed to him within the next week or so. Leonard Slosky also commented that there is still a need for a briefing on what the new system specifications really mean to state users--the implications are not yet clear.

Sally Cornwell next introduced Kathleen Young, from the National Governors' Association's Center for Policy Research, to brief the Data Council on the State Data Needs Assessment Project. Copies of the draft report that included results of a questionnaire and national workshop on state data issues were distributed to the Data Council. Following a brief summary of the project, several comments were offered on the scope of the study--that the content of the questionnaire and the state people to whom the questionnaire was sent were mostly concerned with community and economic development and budgeting, and did not adequately deal with natural resources data issues. Sally Cornwell suggested that the title of the study be modified for the final report to reflect this more restricted scope. Comments from Data Council members were invited by the end of April.

Next on the agenda was an overview of the Five Agency Project concerning Natural Resources Classification and Inventory Procedures presented by Bob Smith of the U.S. Fish and Wildlife Service, Office of Geological Services. The five agencies participating in the project are the Bureau of Land Management, USDA, the U.S. Forest Service, the Soil Conservation Service and the U.S. Geological Survey. These agencies have programs and in some cases, new federal legislation, that require a periodic inventory of different land resources. For the Forest Service, the law requires a census of forest lands every 10 years; for the SCS, an assessment every 5 years. In an effort to reduce the amount of duplication inherent in multiple agencies doing similar inventories, these five agencies signed an agreement in June 1978 to develop in common the classification system and inventory procedures to be used when conducting these repetitive inventories. The extent of cooperation includes--besides data collection and data sharing--appraisal efficiency, program compatibility, and expediting technology transfer. In order to implement this agreement, the agencies agreed to rotate chairmanship between them from month to month, and established three levels of committees--a policy group, a program coordination g oup, and technical work groups (to be established as needed). The three areas to be addressed by this interagency effort are (1) the classification system, (2) inventory procedures, and (3) information management. At the present time, the classification system is being given the most attention. Agreement appears to have been reached on the soil classification component, which is essentially the one now in use by the Soil Conservation Service. A team headed by Richard Driscoll of the Rocky Mountain Station, U.S. Forest Service, is currently working on a vegetation classification component. Other components which will be developed are an aquatic classification and a landform classification. Sometime in June, documents will be ready for review by other federal agencies, states and other interested parties. Bob Smith invited a proposal from CSPA staff and the Data Council on how this organization could assist in the coordination and review process with the states.

Sally Cornwell thanked Bob Smith for the information on this important effort and indicated that a response would be made to his request. She also indicated that the Data Council and the states were very much in support of this effort and willing to help in any way possible.

Paul Antill from the U.S. Geological Survey and Jerome Gockowski from the U.S. Department of Agriculture next briefed the Data Council on the proposed Interagency Nationwide Aerial Photography Program. A copy of a paper outlining the specifications for the high altitude coverage and priorities for acquisition was distributed to the Data Council. Paul Antill indicated that the program developed from a conference for federal agencies that collect or use aerial photography held last year on August 8-9, 1978. The effort is at the point where state support would be very much appreciated. Data Council members were most concerned if state requirements would be considered should they have funds to contribute to the effort. Mr. Antill indicated that every effort would be made to try to meet contributing state requirements, although the mechanism for working this out has not yet been determined. Currently, the only "mechanism" is a steering committee--chaired by the U.S. Geological Survey--that developed the proposal and will coordinate implementation. The five-member steering committee with two ad hoc members for advisory purposes includes:

Agriculture –	Soil Conservation Service
Defense –	Corps of Engineers Defense Mapping Agency (ad hoc)
Interior –	Geological Survey Bureau of Land Management Office of Surface Mining (ad hoc)
Tennessee Valley Authority	

Within the next few weeks (a tentative meeting date has been scheduled for next Thursday), the cooperating agencies will meet to determine if funding can be found in current budgets to initiate the program this year. Otherwise the earliest date for which funding can be sought would be fiscal year 1980. For this reason, first year funding support by states would be the most important. Mr. Antill indicated that he expected the cost for this type of coverage (two cameras at about 45,000-foot altitude) to be equal to or less than $5.25 per square mile--the cost of flying with one camera at a lower altitude than proposed. At this rate, it will cost about $15 million to cover the U.S. He expects that "economies of scale" will keep costs down especially by contracting with one supplier. The U.S. Geological Survey will be administering the contract for flying services and will act as a focal point for this effort, with the guidance of the steering committee. David Ferguson commented that it is unfortunate that the Data Council was not functioning when this effort was initiated so that state views would have been considered in light of their overall needs for remote sensing data. He offered to prepare a draft comment for consideration of the Data Council which was accepted by the Chairwoman. Mr. Antill indicated that a group such as this, affiliated with the National Governors' Association, was ideal for coordination with the states. In order to solicit state support, letters will soon be sent to Mapping Advisory Committees in each state. Both Mr. Antill and Mr. Gockowski indicated they would appreciate help from the Data Council, and would keep the Data Council informed of developments.

Sally Cornwell thanked Paul Antill and Jerome Gockowski for their very informative presentation, and indicated that the Data Council would be more than willing to help with this effort.

Another item of business was further discussion of testimony for the hearing on April 9, 1979, that had been postponed from the previous day. Leonard Slosky introduced a chart that he had prepared from draft testimony provided by Sally Cornwell and by the

NCSL, as well as the previous day's discussion by the Data Council. Because he and Bruce Rado were assisting the preparation of testimony for the National Governors' Association, he also included NGA's emphasis on the chart (Attachment 1). Discussion of the chart provided comparison between testimony and different perspectives of the three organizations. Because the Stevenson bill has so many features desired by the states, the Data Council concurred that their support should not be contingent on the data being provided as a "public service" and that the proposed interim period of 7 years before a final decision is made on that issue was reasonable. The Data Council expressed reservation on the "pay as you go" philosophy expressed in both the Stevenson bill and a similar bill introduced by Senator Schmidt. However, the Schmidt bill would put the satellite system immediately in the private sector. For this reason, the Data Council recommended opposing the Schmidt bill.

The final agenda item was a discussion of topics for special studies for the next year's proposal to NASA. Topics were derived from important issues that had been discussed at both meetings of the Data Council and are included in Attachment 2.

Sally Cornwell thanked members for attending the very full, day and a half session and for the hard work that they had contributed. The next meeting date was scheduled for June 18-20, 1979--Monday through Wednesday--in San Francisco, California. Sally Cornwell invited members to stay after the meeting to meet two gentlemen from L'Operation Pilote Interministerielle de Teledetection (OPIT), the French effort to launch a remote sensing satellite (SPOT). Besides briefing CSPA and NGA staff on the capabilities of the satellite, Mr. Couzy and Mr. Gonfreville would like information on technology transfer efforts involving state governments. Sally Cornwell adjourned the meeting at 1:30 p.m.

Attachment 1

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COMPARISON OF PROPOSED TESTIMONY ON S. 663

TOPIC/POINT	ERDC	NCSL	NGA
Uses/Benefits--NR Issues	X		X
*Public Service System--Cost, Resource Census	X	X	X
Need for Technology Transfer	X	X	X
Not Ban Reproduction/State Exemption	X	X	O
*Support Bill/Operational System	X	X	X
Public/Private Cost Structure	O	X	O
Involvement of S & L Governments	X	X	X
Private Sector Role	X		X
Role of University--Training	O		O
Obl. of Feds. to help states-- Federal Requirement	X	X	X
Consistency of S & L Views		X	
International--Tech Lead			X

IDEAS FOR SPECIAL STUDIES
(with priority)

(1) - Concept Paper on Natural Resources Census
Need for National Policy

- State Data Center Concept in the Bureau of the Census, Dept. of Commerce
Implications on Natural Resources Data Needs

- Natural Resources Data Gap Analysis for Implementing State Programs
and Policy Formulation

(2) - Innovativ ways to get data to state/local users
e.g., funds allocated specifically to data collection through
legislation
e.g., "vertical data integration"--networking agencies who have
capability with those that need it

(3) - Review and analysis of existing and proposed experimental remote
sensing satellite systems

(1) - Resource Catalog of natural resources data sources, especially
federal, and survey of automated information systems

Attachment 2

APPENDIX C-3

Minutes for the

NGA/CSPA EARTH RESOURCES DATA COUNCIL MEETING

June 18-20, 1979

San Francisco Airport Hilton
San Francisco, California 94128

Council Members attending were:

Sally Cornwell, Chairwoman	California, Region 9
Bruce Rado, Vice-Chairman	Georgia, Region 4
Don Yaeger	Minnesota, Region 5
Dennis Malloy	Vermont, Region 1
Paul Cunningham	Idaho, Region 10
Bernard Hoyer	Iowa, Region 7
Leonard Slosky	Colorado, Region 8
David Ferguson	Texas, Region 6

Ex-officio members:

Paul Tessar	National Conference of State Legislatures
Dr. W. A. Franklin	Representative of NGA Chairman, Kentucky

Others attending for all or part of the meeting:

Peggy Harwood	Council of State Planning Agencies
Bill Schneider	Council of State Governments
Dick Weinstein	NASA Headquarters
Darcia Bracken	NASA Headquarters
Mike McCormick	Pacific Northwest Technology Transfer Task Force
Sue Norman	NASA/Ames
Mary Arbogast	CIRIS Task Force

MONDAY, JUNE 18, 1979

1. General Business. The following items were approved.

- Minutes from the March 29-30, 1979 ERDC meeting in Washington, D. C.

- Charter for the Earth Resources Data Council (attachment 1)

2. Information on Concept of a User Liaison Function. Mike McCormick, who has been representing the State of Washington on the Pacific Northwest Technology Transfer Task Force, briefed the Data Council on a proposal for expanding technology transfer services in the three federal regions covered by the Western Regional Applications Program at Ames. The following major points were:

- to have state people funded through an Interpersonnel Transfer Act (IPA) arrangement, one in each of the 3 western federal regions--to work with NASA in stimulating state applications of NASA technology.

- the time has come to provide a liaison function that is not technology dependent, such as the regional remote sensing applications programs has been.

The Data Council concurred that such a proposal would provide an extremely helpful service to the states.

3. Progress Report on the NGA/CSPA Earth Resources Data Project and next year's contract with NASA. A copy of next year's proposal to NASA was discussed (attachment 2). Major accomplishments of the project for the first year include:

- establishment of an active Earth Resources Data Council to provide a needed process for state communication and feedback on data-related issues, such as Landsat-D, two policy studies related to operational remote sensing satellite system (IRS^3 and PSIS), the Five Agency Inventory Project and the proposed high-altitude aerial photography program, and testimony on S. 663 and S. 875.

- adding to the CSPA State Planning Information Report (a quarterly newsletter) information on Earth Resources Data, and

- establishing working relations with several federal programs and with other state organizations.

In addition, the following areas were recognized as needing improvement:

- Newsletters. Three basic types of information need to be distributed: (1) ERDC news, (2) technical news--on state programs, new technology, and federal programs, and (3) policy news--relative to legislation and other policy initiatives. Existing newsletters of CSPA, NGA and NCSL tend to specialize in policy news. Technical news in particular needs to be expanded.

- Relationship to NGA. The Natural Resources and Environmental Management Committee of NGA is primarily focused on energy issues. Ties with the Environmental Management Subcommittee may need to be established.

- Agenda setting and work assignments. Ongoing issues and activities of the project and of the Data Council need clearer definition and priorites/schedules established for action. Data Council members could be assigned specific topics on which to report at the Data Council meetings.

4. Discussion of the states' perspectives on the proposed Nationwide High-Altitude Aerial Photography Program. Based on information provided by David Ferguson, the Data Council agreed to send a letter to the U. S. Geological Survey offering to participate on behalf of states (attachment 3). A concurrent letter from Governor Lamm of Colorado as Chairman of the appropriate NGA Committee also was recommended by Leonard Slosky, and agreed to by the Data Council. CSPA staff member, Peggy Harwood, was directed to represent the Data Council at meetings on this program.

5. Status of two NASA-chaired policy studies (IRS^3 and PSIS) and other information related to establishing an operational remote sensing satellite system. Leonard Slosky distributed two information items: an article on the administration's commitment to provide Landsat-type data through the '80s from Aviation Weekly (attachment 4) and a copy of a letter from Governor Lamm to Calio on Landsat-D.

- Both studies have serious problems in reaching concensus among the federal agencies participating.

- The conclusion is that the private sector is not ready to take on a Landsat type system without large government guarantees and/or subsidies. The final report for the PSIS is out in draft form. There is concern that the private sector can not be expected to provide technology transfer services.

- For the IRS^3, a final report is almot out. At this point, integration options include a high resolution mapping camera with 15 meter resolution desired by the USGS. The ground system most likely recommended will have the data go to White Sands, then by DOMSAT to the EROS Data Center; Goddard may be bypassed. In an effort to reach concurrence the recommendations are getting broader and may not have much meaning with respect to Landsat.

6. NASA Compliance with ISETAP Recommendations. Dick Weinstein of NASA Headquarters summarized various actions taken by NASA in response to the Landsat report prepared by the Natural Resource and Environment Task Force of ISETAP in June 1978. Recommendations made in the ISETAP report and the appropriate NASA action are as follows:

1. Federal commitment to data continuity and compatibility.

2. Federally supported Landsat Information System.

3. Define federal agency responsibilities for the Landsat Information System.

4. Federal commitment to involve states in Landsat Information System decisions. Not the responsibility of NASA; these four issues must be resolved by the Administration or Congress.

5. Federal commitment to a comprehensive and continuing Technology Transfer Program. NASA established the Regional Remote Sensing Applications Program in response to this recommendation.

Council of State Planning Agencies
An affiliate of the National Governors' Association

Robert N. Wise
Director

THE EARTH RESOURCES DATA COUNCIL

CHARTER

(Adopted 6-19-79)

General Scope

The Earth Resources Data Council will serve as an advisory panel to the National Governors' Association's Committee on Natural Resources and Environmental Management on natural resources data policy and as the nucleus of a communication network for the Council of State Planning Agencies representing the interests of states on intergovernmental natural resources data issues.

Goals and Objectives

- To provide state input on federal natural resources data issues through such opportunities as provided by ISETAP* and pending legislation in Congress, and monitor results of that imput.
- To promote recommendations on the states' needs for technology transfer and research concerning satellite remote sensing and related technology development efforts.
- To inform states of federal programs and policies relating to natural resource data, including satellite and other remote sensing systems.
- To provide interstate information exchange and cooperation in satellite remote sensing and other natural resource data programs.
- To facilitate and evaluate technical assistance to states for the application of satellite remote sensing and in the development of natural resource information systems.

Organization Structure

The Chairperson of the Earth Resources Data Council and nine other members will be appointed by the President of CSPA in consultation with the Chairman of NGA's Committee on Natural Resources and Environmental Management. The ten Council members will be selected from key state policy offices in each of the ten standard federal regions. Council members should have a broad knowledge of state needs, be familiar with technology applications and be able to reflect the needs and concerns of their region.

*The Intergovernmental Science, Engineering and Technology Advisory Panel of the President's Office of Science and Technology Policy.

A Vice-Chairperson will be chosen by majority vote of the Council members. The Vice-Chairman will be selected from voting membership and will chair meetings in the absence of the Chairperson.

One ex-officio representative to the Earth Resources Data Council will be appointed by the Governor serving as Chairman of NGA. Other ex-officio representatives will be invited by the President of CSPA as required to provide technical expertise and facilitate coordination with other public interest groups with similar objectives.

Responsibilities

The Earth Resources Data Council, through CSPA, will provide information and submit recommendations on natural resources data policy to NGA's Committee on Natural Resources and Environmental Management. The Data Council also will oversee CSPA project activities concerned with natural resources data issues, and provide for information exchange with states. Specific responsibilities relating to contracts will be listed in attachments to the charter as appropriate.

In addition, members of the Council are responsible for:

- effectively representing their respective regions' views on Council concerns;
- attending all meetings of the Council;
- providing any necessary documentation on their states' expressed needs or conditions; and
- assisting in the identification of intergovernmental earth resources data issues.

#4971 (second year)

WORK PLAN

EARTH RESOURCES DATA PROJECT

1.0 INTRODUCTION

To successfully execute their responsibilities related to natural resources management, states are increasingly turning to new technology for the acquisition and analysis of information to implement their legislative mandates and satisfy their programmatic requirements. One rapidly emerging new technology is Landsat. Initial stimulation of the application of Landsat in state programs was provided by the Federal Government through the NASA investigation and demonstration programs. However, further development and application of Landsat and related data by the states will greatly depend on the recognition by state executive officials that this technology will strengthen their capabilities to economically address major problems. The emergence of Landsat as a useful tool for states, the system changes planned with Landsat-D, as well as new capabilities from experimental satellites, makes it important that a number of issues and concerns be systematically addressed if the capacity of this new technology is to be fully utilized by states.

The purpose of this project is to maintain a focal point under the auspices of the National Governors' Association (NGA) and its affiliated organization, the Council of State Planning Agencies (CSPA), through which issues associated with state use of satellite remote sensing and related natural resources data can be identified and coordinated with the states and NASA.

2.0 OBJECTIVES

The specific objectives of the project to be performed by the Contractor are the following:

- Provide a focal point for the identification and coordination of immediate and long-term needs of state and local resource agencies for remote sensing technology; particularly in the areas of agriculture and water quality.
- Establish a flexible consultation/advisory process for involving state-oriented special discipline organizations such as the National Association of State Departments of Agriculture and the National Association of State Information Systems.
- Prepare recommedations to NASA on the needs of states for data, applications research, and information system capabilities associated with satellite remote sensing technology development.
- Exchange information on state applications and experiences using Landsat with state Governors and other key policy and planning officials, and organizations representing state and local government.
- Identify and prepare recommendations on intergovernmental data coordination needs, particularly as required to enhance the value of Landsat data use.

- Identify and pursue unique opportunities to incorporate the use of remote sensing technology into operational state programs.

- Perform evaluation and provide recommendations concerning existing NASA technology transfer and user assistance activities.

- Use the Earth Resources Data Council (ERDC), comprised of state representatives, to advise the project and provide the states perspectives as required for key activities and decisions concerning the evolving Landsat program and related activities.

3.0 PROJECT TASKS

3.1 Task 1 - User Communication/Coordination

3.1.1 Earth Resources Data Council

As the primary mechanism for state input to this project, the Contractor will rely on an existing user panel -- the Earth Resources Data Council -- appointed by the President of CSPA, in consultation with Governor Lamm, Chairman of NGA's Committee on Natural Resources and Environmental Management. The Data Council was formed to coordinate state input to NGA and CSPA on Natural resources data issues, e.g., Landsat and state information systems. Council members were selected from each of the ten standard Federal regions and include key policy and planning staff with experience applying new technology to state problems and broad knowledge of natural resources data needs. In addition, there is one ex-officio representative appointed by the Chairman of the National Governors' Association and one invited by CSPA from the Nationl Conference of State Legislatures. Specifically, the Council will perform the following functions for this project:

- Advise NGA-CSPA on project activities.

- Serve as the core of a two-way communication network with all 50 states on satellite remote sensing and related data issues.

- Provide staff support to NGA's Committee on Natural Resources and Environmental Management on Landsat-related natural resources data policies.

The Council will be convened quarterly and will be devoted to project related activities.

3.1.2 Coordination with Public Interest Groups

As an important part of the User Communication/Coordination task, the Contractor will initiate contact with discipline-oriented state organizations, specifically with the National Association of State Departments of Agriculture and the National Association of State Information Systems, to define a process by which these

organizations can assist, or be assisted by this project. The establishment of special task forces of state agency personnel with the cooperation of these state organizations to further identify state needs for Landsat applications in agriculture and geobased information systems will be evaluated. The Contractor will continue to represent the project activities to the NGA's Committee on Natural Resources and Environmental Management and will begin discussions with interested national groups representing local governments e.g., counties and regional commissions to assess the logical relationship between state and local governments with respect to developing state capacities for using Landsat and related natural resources data.

3.1.3 Newsletters

Existing newsletters published by CSPA ("State Planning Information Report") and by NGA ("The Resource") will be used to communicate with constituent state officials at least quarterly relating to project issues. There will be a minimum of six project specific articles prepared as part of this work effort. Articles prepared for these newsletters will be distributed independently to Data Council members and on a national basis to the Governors' offices and key natural resource agencies in all 50 states. The newsletter articles will focus on literature surveys, new data products, and other developments in remote sensing technology and applications that affect state use of Landsat and related natural resources data.

3.1.4 Information Brochure--"Earth Resources Data and the States"

The Contractor, in consultation with the Earth Resources Data Council and NGA's Committee on Natural Resources and Environmental Management, will prepare an information pamphlet especially for Governors, state planning officials and policy staff focusing on the importance of natural resources data in state programs. Emphasis will be placed on state requirements for remote sensing data, and on efforts to conserve data costs by establishing interagency state data centers and pooling state resources. As part of this discussion, the pamphlet will address the intergration of satellite remote sensing data into state programs and alternative mechanisms available to states for improving their capacities to use Landsat and related natural resources data. The Contractor shall prepare and distribute 5000 copies of the brochure.

3.1.5 Special Information Items

As needed for project support, the Contractor will also prepare, present and/or distribute timely analyses, testimonies, reprints or memoranda that focus on developments in remote sensing technology and applications, or in Federal programs that would be of interest to states using Landsat and related data. For example, follow-on issues e.g., policy, institutional or technical considerations related to the Intergrated Remote Sensing System Study (IRS), the Private Sector Involvement Study (PSIS) and other such Federal interagency

efforts, would be distributed to states and the Earth Resources Data Council before state requirements for these options were identified. The established communication networks of NGA, CSPA and other organizations will be used in the execution of this task.

3.2 Task 2 - Special Studies

There is a requirement to identify the changing needs of states related to improving state capacities for using remote sensing and related natural resources data. Of pressing concern to states are the demands for information--created by Federal programs and the expanded state role in managing natural resources and the environment--without equal attention to providing the appropriate data needed for implementation.

In an effort to address some of these concerns and to compile information on state requirements and uses of these data, the Contractor, in consultation with the Earth Resources Data Council, will develop and conduct special studies designed to identify processes, needs and techniques for utilizing remote sensing and related data at the state level. In support of project activities, the following studies shall be conducted:

3.2.1 Existing and Proposed Remote Sensing Satellites. With the increased use of Landsat data in the states, interest is growing in additional capabilities to inventory earth resources that are being incorporated into experimental satellites. This interest includes data from operational and experimental satellites that could be incorporated with the development of geobased information systems for state planning and management activities. The Contractor shall produce a document summarizing the system parameters and potential applications for each existing and planned satellite, including sensors, data formats, and data delivery characteristics. Information will also be developed on compatibility of the data with other remote sensing data now used by states, and capabilities needed by states to process the data. This task will provide a comprehensive source of existing and planned remote sensing systems which may be available to state users in the near future.

CSG 3.2.2 Reference Catalogs. State executive officials and other users have indicated a strong interest for reference information on opportunities in Federal programs to assist state use of remote sensing and other natural resources data, and promising new technologies that could assist states to improve their capacity for managing their natural resources. The Contractor, with the guidance of the Earth Resources Data Council, will conduct the following surveys to provide important reference material for states:

- Federal Natural Resources Data Programs. The catalog will pull together various Federal programs through which states obtain data or the funds to obtain needed data, in an attempt to provide the state level user with a new perspective on data sources. An in-depth survey also will be conducted in a few sample states to provide information about the opportunities to use these Federal program funds to enhance the use of remote sensing data in state programs.

- State Remote Sensing Programs. A document will be compiled describing existing state remote sensing programs. This document shall, for each individual state, describe the applications of remotely sensed data in the state; the institutional framework set up to support the activity; key state agencies and other organizations involved; key personnel contacts; status of technical capability development and other key information.

3.2.3 The Potential for a National Census of Natural Resources Using Remote Sensing. Planning and development activities -- such as housing, community and economic development -- are supported through Federal data-collection of the U.S. Bureau of the Census. The census of population and housing and other statistical efforts provide a standard baseline for data that is used by Federal, state, regional and local government. Efforts are now underway to make these data even more available by the establishment of State Data Centers for the distribution of census products.

Natural resources data is a commodity of equal importance to socio-economic data among states for which no uniform data gathering mandate exists. Federal agencies charged with resources management and environmental protection now collect and maintain massive data banks, but compatability between sources is minimal. Recently, there have been several interagency efforts to coordinate the collection and distribution of natural resources data. Five agencies in Interior and Agriculture are cooperating to develop standard natural resources inventory and classification procedures. Other data coordination efforts by NCIC and NAWDEX in Interior also indicate a trend towards a nationwide data network. However, it was not until the advent and increased use of Landsat that the technology seemed appropriate for the economical, repetitive and standard inventory of land cover and other surface resources.

This study will concentrate, from a conceptual perspective, on the issues involved in a national census of natural resources using remote sensing. State programs which would benefit from the regularly scheduled uniform data collection effort would be identified through interviews with state and Federal officials, extensive literature review, and analysis. The implications of State Data Centers -- established by the Bureau of the Census or by other means -- also would be addressed relating to the use of remotely sensed natural resources data by states. The end goal of this task is to provide a conceptual framework for closer interaction between and combined use of demographic and natural resources data.

3.3 Task 3 - Continuing Role of User Awareness Agent and Support of NASA Intergovernmental Activities

Experience has shown that states have unique problems in learning to apply satellite remote sensing data and in integrating that

technology with other data for use in natural resources programs. In addition to technical assistance, developing the capacity to use Landsat in state programs requires a comprehensive, innovative look at a particular state's institutional situation, program priorities, and training needs -- an assessment that can be greatly assisted by experienced state personnel who are sensitive to the political realities in state government. To provide this type of assistance, the Contractor shall perform the role of a user awareness and assistance agent for the states. The awareness and assistance activities shall draw upon the Contractor's own expertise as well as the promotion of a concept of cross-fertilization (exchange of experience and expertise) between states. States that have already begun to use Landsat and have tackled the integration of new data and technology into state natural resources programs form a unique pool of talent on which to draw for helping other states -- a capacity for self help that should be encouraged. The thrust of activities comprising this task shall consist of:

3.3.1 In-State Visits. As needed, the project staff will be making day-long visits at the request of the host state to participate in briefings for state interagency councils and other executive officials on the benefits of remote sensing technology in the states. During the project year, a minimum of five such visits are anticipated. Visits of this nature will be coordinated with NASA Headquarters and the Regional Centers to complement technology transfer activities in the host state.

3.3.2 Orientation Workshops. One important approach for providing technical assistance to states is the state workshop that provides an orientation to remote sensing and information systems technologies, pertinent state applications, and innovative ways states have integrated these technologies to support state natural resources programs. With the guidance of the host state, these workshops will focus on natural resources issues of greatest importance to that state. NGA-CSPA will draw on state personnel from states that have had experience with pertinent Landsat applications to promote the most useful information exchange possible. Such workshops will be coordinated and, where appropriate, co-sponsored with NCSL and NASA Regional Remote Sensing Applications Centers. A minimum of three workshops will be held during the project period.

3.3.3 Special Team Visits. In an effort to fill some gaps in available technical assistance opportunities the Contractor shall organize a small team of state people at the request and with direction of the host state to address a limited topic. Such sustained consultation lasting several days will provide an opportunity to follow up on interest generated by orientation workshops with more in-depth discussion of: (1) discipline-oriented applications; or (2) the most likely approaches for integrating these technologies into the host state's programs. Although only two such visits are contemplated for this year, this team concept should prove a successful opportunity for states to more rapidly analyze their needs and develop capabilities for using remote sensing data.

3.4 Task 4 - Representation of State User Interests

With budget tightening at the Federal and state level, states have become more concerned with costs and improving their ability to use all types of natural resources data, including Landsat, in existing management programs. There is a widespread opinion among states that Federal natural resources data policies and collection programs could be better coordinated with the needs and interests of states. Accordingly, NGA-CSPA, with the guidance of the Earth Resources Data Council and NGA's Committee on Natural Resources and Environmental Management, will be representing the states in discussions with NASA and other Federal agencies on various remote sensing related issues.

Examples of Federal activities that would be monitored include: (1) Landsat-D system parameters including the types of standard data products contemplated, and their cost and timeliness; (2) follow-on activities to the Presidentially directed Private Sector Involvement Study and the Integrated Remote Sensing System Study; (3) implementation of ISETAP recommendations and the President's Space Policy; and (4) the Five-Agency Project concerned with natural resources classification and inventory procedures.

As requested in the process of monitoring Federal activities, recommendations on state needs for remote sensing data and compatible information would be submitted to the appropriate NASA or other Federal committee. The Contractor will coordinate recommendations with NGA and rely on the Earth Resources Data Council and state networks for determining state input.

3.5 Task 5 - Prepare Project Summary Report

The Contractor shall prepare a final project report summarizing the results of all project activities completed in Tasks 1 through 4. The format and contents of the report will be reviewed and approved by the NASA Project Monitor prior to its generation.

PROJECT SCHEDULE

TASK	DELIVERABLE ITEMS	Oct 1	2	3	Jan 4	5	6	Apr 7	8	9	Jul 10	11	Sept 12
		MONTHS AFTER CONTRACT AWARD											
1.1	Proceedings of the four Earth Resources Data Council Meetings.*	•			•			•			•		
1.3	Six newsletter articles on remote sensing.		++		++		++		++		++		++
1.4	Information Brochure - "Earth Resources Data and the States."									++			
1.5	Copies of special information items e.g., testimonies. (If applicable)												
2.1	Summary Document of Existing and Proposed Remote Sensing Satellites.						++						
2.2	Reference Catalogs:												
	- Survey of Federal Natural Resources Data Programs												++
	- Survey of State Remote Sensing Programs												++
2.3	Conceptual Document: Potential for a National Census of Natural Resources Using Remote Sensing.												++
3.1	Minimum of five (5) In-State Visits -- Corresponding Documentation.*												
3.2	Minimum of three (3) Orientation Workshops -- Corresponding Documentation.*												
3.3	Minimum of two (2) Special Team Visits -- Corresponding Documentation.*												
5.0	Summary Report.												++

* Due 3 weeks after each scheduled event. (6 -- ERDC Mtgs)

The format and contents of each of these product end items shall require the approval of the NASA Project Monitor prior to finalization.

National Governors' Association

Julian M. Carroll
Governor of Kentucky
Chairman

Stephen D. Farber
Director

June 20, 1979

Mr. R. B. Southard
Chief, Topographic Division
U. S. Geological Survey
516 National Center
12201 Sunrise Valley Drive
Reston, Virginia 22092

Dear Mr. Southard:

It was indeed a pleasure to have Mr. Paul Antill of your staff at the March meeting of the NGA/CSPA Earth Resources Data Council (ERDC) to discuss plans for the nationwide aerial photography program. As you are aware, this topic is of extreme interest to state level natural resources data users. The ERDC appreciates the opportunity to review this work with your agency and others involved.

As provided in the ERDC charter, a significant role of the Data Council is to provide a focal point for coordination and interface between state and federal agencies on data needs and programs. With this in mind, we would like to further explore the possibility of continuing to interface with the federal interagency efforts on this important program.

As outlined below, we have set out some areas in which we feel that the Data Council could provide an effective point of interface for the states in this activity. For the most part, this point of interface is built around the overall goals and objectives of the nationwide aerial photography program and not on the details of specific flight plans, site selections and the like. We are aware that these areas of more specific detail will evolve during the conduct of the program, particularly as feedback is received from the various federal agencies, state mapping advisory committees and other users. Selective detailed comments, however, were received from some members of the Data Council and these have been communicated to your staff directly by the respective state members of the Data Council.

With regard to an interface with the overall program, we would first like to give you a Data Council perspective followed by a list of possible opportunities.

EARTH RESOURCES DATA COUNCIL PERSPECTIVE:

A coordinated national photography program is a much needed activity having significant benefits for state-level users of this data. A continuing operational federal program can have important benefits in allowing state capabilities to focus on more detailed and site specific photography requirements and at the same time, provide a consistent photographic data

base upon which state responses to federal requirements can be built. With regard to this last reference, the states continue to be "partners" with federal agencies in carrying out federal mandates...i.e., implementing programs in response to federal legislation, rules and regulations. After considering this and other significant factors, it is essential that state level input be made into the overall planning and operation of the program regardless of whether specific state funding is available to further support the program on a cooperative basis. The ERDC provides a mechanism for facilitating this coordination of state level input.

OPPORTUNITIES FOR INTERFACE

- The staff associate in the Council of State Planning Agencies should represent the Data Council at future meetings to ensure state input and coordination and solicit state perspectives on operational requirements and plans.

- Through the Data Council, provide a forum to consider state level input to overall objectives, plans and requirements of the program as they seek to be responsive to state level needs. This would include, for example, when and how best to involve state level users? How best to involve the state mapping advisory committees? How to best communicate to state level users an awareness of data availability and distribution plans? How best to coordinate state input to plans for enhancements to the program as it evolves?

- In addition, this state feedback could be received and coordinated through the Data Council in such a way as to document state need. The affiliation of the Council of State Planning Agencies (CSPA) with the National Governor's Association (NGA) would provide an effective mechanism for policy level review of state support for this program.

After you and your staff have had an opportunity to consider these thoughts on interface with the Data Council, we would appreciate receiving an indication of your views on this matter. Hopefully, at our next Data Council meeting in September we will be in a position to consider your response and begin plans for going forward with this interface. Again, we very much appreciate the opportunity to coordinate with you in this effort.

Sincerely,

Bruce Rado, Acting Chairman
Earth Resources Data Council

cc: Paul Antill, USGS
Peggy Harwood, CSPA
ERDC Members

Operational Landsat Wins Backing of White House

Washington—Carter Administration "is committed to an operational remote sensing system," presidential science adviser Frank Press has told Congress. Press added that just how the Administration would carry out an operational Landsat system remains undefined.

Congressional staff members had mounted an intense campaign against the White House in the weeks preceding his congressional appearance to convince the Administration that sentiment is so strong in the federal government and private industry for an operational Landsat system that the White House would be seriously remiss if it did not say something favorable about the formation of an operational remote sensing system.

Federal agencies appearing at a hearing on legislation that would form such an operational system were prepared to support generally a bill proposed by Sen. Adlai Stevenson (D.-Ill.) that would initiate an operational system within NASA for at least the first seven years. Office of Management and Budget, however, vetoed that favorable testimony by the supporting agencies. Instead, agencies such as Interior Dept., NASA and National Oceanic and Atmospheric Administration could only voice their desire to work with Sen. Stevenson in the future.

Both Sen. Stevenson and Sen. Harrison H. Schmitt (R.-N. M.), who also has proposed remote sensing legislation, told Press they considered the Administration's new statement on an operational system encouraging, but inadequate considering the lengthy analysis that has taken place over the last several years.

"Everyone in the Carter Administration wants to get on with remote sensing except one person—Carter," Sen. Stevenson said.

Sen. Stevenson's bill could transition the operational system from NASA to another government agency or private corporation or leave it with NASA, depending upon the experience gained in the first seven years.

Sen. Schmitt's bill would form an investor-supported corporation similar to Comsat Corp. to run the operational system from the start.

Comsat last week offered to become the operator of the U. S. remote sensing satellite service, but under a compromise approach incorporating aspects of both the Stevenson and Schmitt legislation. In addition to this broad-based operational system proposal, Comsat Corp. has also proposed to NASA that the corporation establish commercial operations with a Stereosat spacecraft.

"Comsat's proposed approach would be to designate [the corporation] as the entity responsible for the establishment of an operational remote sensing satellite system and the provision of basic data products," John L. McLucas, Comsat executive vice president, told the Senate Commerce subcommittee on science, technology and space.

"Analysis of data products would continue to be performed by the users themselves or by service companies on a competitive basis. However, designation of Comsat would not necessarily imply an abrupt transfer of existing remote sensing programs and systems to Comsat," McLucas said. "Rather, there could be an interim period during which NASA could maintain responsibility for its presently approved Landsat programs, including Landsat D.

"But since there are significant data requirements in the user community that the Landsat series of spacecraft satellites will not supply (e. g., high-resolution stereoscopic data), Comsat (assuming appropriate resolution of essential issues . . .) would proceed to establish a system as soon as possible to satisfy those requirements, as well as any other requirements which might be satisfied by additional payloads sharing the same spacecraft. At the same time, Comsat could begin the planning and other actions necessary to establish the operational follow-on to the Landsat D system."

Press told Sens. Stevenson and Schmitt that the Administration considered the Stevenson proposals as helpful in directing the Administration course and that it is likely some of those provisions will be in the Administration's eventual policy. He said, however, that the Administration does not believe that either the Stevenson or Schmitt legislation should be enacted now.

He specifically said the Schmitt bill, in the Administration's view, pursues too strict a management approach for the status of the technology at this time. The Administration is not at all sure that an operational remote sensing system operated now by the private sector would be economically viable, Press said.

"Due in part to the multipurpose nature of remote sensing, no dramatic single beneficial application has emerged," Press told the Senate subcommittee. "Another complicating factor is the lack of a clear focal point in the government which can aggregate user requirements for remote sensing and other earth resources data," the science adviser said.

"Although much experience has been

State Landsat Utilization Extensive

Washington—State governments have expended $17.5 million over the past seven years to purchase and utilize Landsat earth resources satellite products for various resource assessments.

Nearly 1,500 state employes have had training in the utilization of Landsat products, according to a study conducted by the Intergovernmental Science, Engineering and Technology Advisory Panel, an organization composed of state, regional and local government officials.

Thirty-five of the states have used Landsat in 157 applications in the planning and management of natural resources, the study found. The report was described to the Senate Commerce subcommittee on science, technology and space by James Monaghan, executive assistant to Gov. Richard Lamm of Colorado, who along with Michigan State Representative Thomas Anderson headed the study.

The group found that 18 of the states had used Landsat for land cover inventory and resources management, while 16 had used Landsat data for water quality assessment and planning. Nine states use the data for wildlife habitat inventory and geological lineament mapping. Surface water mapping, flood control and damage assessment are done via Landsat in seven states, as is crop inventory. Six states use the spacecraft for geologic mapping and forest inventory.

"An often overlooked element of state analysis of Landsat data is the role of federal agencies as users of state generated products," Monaghan said. "This allows state resource data to be incorporated into federal agency decision-making affecting a state's resources. Given the multifaceted resource concerns of states, it may be that state-generated products could be more economical.

"Seven states are considered to have independent on-going operational Landsat analysis and applications capabilities," he continued. "Three of these states are extensively utilitizing Landsat in the planning and management of their natural resources. Twelve states have completed, or nearly completed, demonstration projects and are close to deciding applicability of Landsat to their ongoing data requirements. Of these, nine are likely to have operational programs under way within the next several years. Sixteen states are in the early phases of demonstration programs to assess the applicability of Landsat to their needs. In only 15 of the 50 states are there no significant Landsat activities under way.

"Thirty-three states have established mechanisms to integrate Landsat," he said. "Ten states have purchased, budgeted or ordered analysis equipment. Twelve states have Landsat programs which are legislatively recognized by enabling legislation, specific appropriation or by resolution.

"Over $9 million of state funds and nearly 380 person years of staff time have been invested in Landsat technology," he concluded. "Nearly $8.5 million in state-controlled federally provided funds have also been invested by the states [in Landsat work]."

gained, the configuration of future remote sensing systems, in our view, still needs further comparative study before an institutional framework and desired technology mix are selected," he added.

"Experience suggests that integrated systems are practical. Therefore, the President has directed that a comprehensive plan covering expected technical, programmatic, private sector and institutional arrangements be developed. These interagency task forces—with emphasis on user agency requirements—will examine options for integrating current and future potential systems into a plausible, integrated national system. We believe this cautious approach is necessary. The potential to involve the private sector, for example, has not been adequately explored or emphasized to date," Press said.

White House assessments on how to proceed should be completed by this summer, Administration officials said.

The Interior Dept. is interested in having operational responsibility for Landsat, Fredrick J. Doyle, acting chief of the Interior Dept.'s earth resources observation system (EROS) program, told the subcommittee. He cautioned, however, that he does not believe earth resources products have reached the state where commercial operations now would be viable.

Doyle also is concerned about current NASA systems. He told the committee that while the Eros Data Center at Sioux Falls, S. D., can now provide a user with Landsat products within seven days of receipt of the data, NASA has been unable to provide Eros with these products in a timely manner and that a data backlog has developed at the Goddard Space Flight Center Landsat data processing facility. Doyle estimated the time from spacecraft to user is now about 30 days, with the bulk of the time absorbed by NASA.

He said the Interior Dept. believes NASA's Landsat D system is a capability in excess of what is required for operational earth resources data and that a multispectral scanner type approach instead of thematic mapper approach would have been better.

He said his department hopes that a digital link can be built between NASA and the Interior Dept. so Landsat D products can be available to users within two days of image acquisition by the spacecraft. This system would involve $6-10 million in Interior Dept. capital costs, Doyle said. He said NASA's current proposal on the matter is for a film system similar to current operations and that data delays like those encountered now could be the result.

Daniel J. Fink, General Electric vice president, who has been active in the Landsat program since its inception, told the subcommittee he believes Sen. Stevenson's bill is the best route to pursue now.

"It has placed [the operational system] under NASA's cognizance," Fink said, "a wise decision for two reasons: First, the accumulated experience and technical competence of the space agency can be made available to the new organization most efficiently; and second, the direction of the R&D program, which NASA will sustain to increase the capability of the system, can be managed best through this direct organic relationship."

He stressed, however, that he believes "that both during the interim period and thereafter, private business sector participation is the preferred mechanism for system and market development. This can avert the danger that the program may grow in government hands until the logical level of entry for private investment capital is exceeded."

Fink was not in favor of Sen. Schmitt's bill as currently structured. He does not favor disassociation from NASA so soon and he has concerns about bringing the Federal Communications Commission in as a regulating entity as the Schmitt bill would.

"I feel the minority draft would cast the organization and operation of the . . . system in the Comsat mold," he said. "I have taken the position . . . that what was good for the communications business with its long-established markets, mature user operating practices, and accepted international agreements, would most likely be bad for earth resources observation, a new, untried venture with technology and markets that are still developing and proliferating. The systems are poles apart."

Sen. Schmitt and Sen. Stevenson believe they need to pursue passage of their bills through the committee process to keep the pressure on the Administration, with the hope they can be ready with a bill to present to the full Congress in late summer in the event the Administration, in their view, does not propose a strong operational system framework.

Council of State Planning Agencies
An affiliate of the National Governors' Association

Robert N. Wise
Director

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February, 1980

APPENDIX D

STATEMENT OF

SALLY BAY CORNWELL
Chairperson, Earth Resources Data Council
Director, California Environmental Data Center

COUNCIL OF STATE PLANNING AGENCIES, EARTH RESOURCES DATA COUNCIL

before the

SUBCOMMITTEE ON SCIENCE, TECHNOLOGY AND SPACE
COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION

UNITED STATES SENATE

Mr. Chairman and Members of the Committee:

My name is Sally Bay Cornwell. I am the Director of the California Environmental Data Center within the Governor's Office of Planning and Research. I am here today representing the Council of State Planning Agencies' Earth Resources Data Council, which I chair, in support of and in cooperation with the National Governors' Association Committee on Natural Resources and Environmental Management. The Council primarily represents the views of state governments, although it also reflects the data needs of local governments related to state mandated local programs and state local assistance efforts. My primary purpose is to present the views of the states on the establishment of an ongoing institutional framework to make data and basic information products on the Earth's resources and environment available to all users. There are three important points I want to make clear today:

1) in general, the states are increasingly realizing the uses and important benefits of the Landsat program;

2) assurance to the states regarding the establishment of continuous, reliable data collection and distribution system for Landsat data is urgently required; and

3) the Data Council favors passage of the Earth Data Information Services Act of 1979, with some reservations to be expressed later in this testimony.

State Uses

In recent years increasing awareness of the significance and lasting impact of decisions concerning land use, our environment and the utilization of our natural resources has developed. Responding to this awareness both state and federal legislation have increased the authority and responsibility of state governments to plan and manage the use of our land and natural resources. Federal programs such as Coastal Zone Management, the Federal Water Pollution Control Act, the Surface Mining Control and Reclamation Act of 1977 and others have demanded that states have access to large quantities of diverse data to describe and monitor conditions on the earth's surface. State programs, such as California's Coastal Zone Conservation Act, Mississippi's Forest Practices Act, and the Maryland Wetlands Act, have further increased these data demands. To effectively execute these responsibilities within their limited budgets, state and local agencies have

been forced to go beyond conventional data collection techniques which are often inadequate and too costly, in the search for better data gathering techniques. One of the most effective new tools, when used in conjunction with existing data in an established data base, is the Earth remote sensing satellite, Landsat.

The most important and widespread application of Landsat by the states has been the inventorying of land cover information which can be integrated with soils, geologic and other resources data to develop a comprehensive information base for planning and management of land use and natural resources. In many cases, it was only through Landsat that states were able to develop natural resource inventories a on statewide scale.

There are numerous reasons for the increasing use of Landsat technology, including the recurring coverage for monitoring purposes, the ability to identify and isolate areas where closer study is needed, computer compatibility, and its feasibility for use with other data sources. However, the use of satellite remote sensing by state governments can usually be traced to one of two main reasons:

1) it provides a tool to develop new and additional information which was inaccessible with traditional techniques; and

2) it has allowed the potential to obtain information more quickly and at a lower cost than conventional techniques, a factor rapidly growing importance in these post-Proposition 13 times.

I would like to give the committee just a few state examples to further elaborate on these two points.

Idaho's agricultural lands are heavily irrigated and comprise a significant and often changing demand on the state's water supply. In fact, it is estimated by the state's Department of Water Resources that around 10,000 additional acres became irrigated every year for the past ten years. However, the location and intensity of the irrigation which is of utmost importance to provide sufficient water have never been adequately known. Much of the existing data is up to ten years old and virtually useless for current planning and management purposes. To determine these unknowns, and to get a better understanding on the amount and kind of irrigated crops added each year, Idaho turned to Landsat. According to the Department of Water Resources planners, Landsat proved the most effective method of inventorying irrigated lands and establishing the optimum distribution of water. Landsat data was used to update the inventory of four million acres of irrigated lands along the Snake River--a task that had not been completed for the past decade. As a result of these benefits and anticipated future uses, Idaho uses Landsat in an operational mode to meet water planning and management needs.

The Texas Natural Resources Information System used Landsat data to map a small test area of the commercial timber zone in East Texas. The results of this pilot project indicate this 11 million acre region can be inventoried at considerable cost savings over other methods. For example, using traditional

aerial photography, it is estimated that 10.7 man years would be required to map the entire region and thus, if completed by 1-2 people, the information would have been out-of-date and virtually useless. However, using Landsat, the same project would take only 4 man months to complete.

Landsat can also provide previously unobtainable data because of the large area covered by a single satellite scan. This broad perspective is practically impossible with any other data source. For example, wide area features such as faults or other geological features that are visible on Landsat would go undetected on aerial photos.

Cost-efficiency in gathering and managing natural resources data has become extremely crucial as the states seed ways to tap existing sources of data so that costs can be lowered without compromising data quality. As I have mentioned earlier, state and local agencies are faced with increasing demands for natural resources data. However, these same agencies are facing increasing scrutiny of their fiscal affairs, as particularly evidenced by California's Proposition 13, and now find themselves directly in the middle of the battle to balance the necessary conservation and protection of the environment and the fiscal responsibility and restraint demanded by the taxpayer. In short local and state agencies need more and better information at lower costs. The use of satellite remote sensing is one way to meet this problem.

For example, as part of the Pacific Northwest Regional Commission's Land Resources Inventory Project, the Washington State Department of Natural Resources used Landsat to inventory ten million acres of federal, state, and private forest reserve in western Washington. Conventional methods would have taken two years and an estimated cost of $2.0 million to accomplish this inventory. Using Landsat, a comparable inventory is being completed in one year at a tenfold reduction in cost.

In southwestern Illinois, the completion of a required land cover inventory using traditional methods took 8 years, covered 1,786 square miles and cost approximately $106,000. Using satellite imagery, the same survey took 6 months, covered 3,782 square miles, and cost approximately $16,000 resulting in a 14-fold cost reduction.

In the East Texas Commercial timber zone mapping I mentioned earlier, the extrapolated cost and timeliness of Landsat ($10,200 in 4 man months) would be quite favorable when compared to the extrapolated estimates for serial photos ($294,000 in 10.7 man years). The Maryland Department of State Planning realized a 13-fold cost reduction by using Landsat in preparing a state land use and eevelopment map and inventory.

Required Assurance of Continuance

There are other examples of time and cost savings too numerous to mention today. Obviously, many state and local government officials look to Landsat as an important aid in carrying out their mandated responsibilities. The overwhelming opinion of the states is that the Landsat Program should continue on an operational basis without any interruption in data availability. For the states to make a commitment to use the new Landsat technology, it is clear an operational system must exist.

Whatever federal system is established for the collection and distribution of Landsat data, it should proceed immediately. The states need assistance in information collection now. They need the reassurance that their time and dollar investment in Landsat is not part of a short-term fanciful experiment. It is obvious that Landsat data are needed and are useful. With federal legislation requiring the acquisition of more detailed data, it is the responsibility of Congress to see that the research investment in Landsat is not lost but carried through to a useful, ongoing status.

In the last year, several major reports representing state and local government perspectives have been issued; all unanimously endorse a firm federal commitment to an immediate establishment of an operational earth resources information system. In one such report, Governor Edmund G. Brown Jr. of California stated, "The federal government must guarantee that the Landsat system be given long-term operational status rather than continuation as a short-term research program. Only on that basis can the state commit its own resources to the continued use of this technology." The hesitancy to commit to such a system is of great concern to the states, who are in critical need of a system that can be relied upon for data quality and continuity at reduced costs.

Recommendations on the proposed Earth Data Information Services Act of 1979

In view of the situation now facing state and local government, we would strongly urge the establishment of an operational earth resources information system, proposed in the Earth Data and Information Service Act of 1979. However, we would like to emphasize a few reservations we have regarding the bill, as well as those points we particularly support.

First, I would like to reiterate the importance and urgency of establishing an ongoing remote sensing system, as proposed in the Earth Data and Information Service Act of 1979. The reasons for this have already been outlined, but require further emphasis. State and local agencies have the responsibility for and increased burdens of implementing federally mandated natural resources and environment programs while simultaneously facing budgetary cuts and limitations. The establishment of the Earth Data and Information System assures continuity of Landsat data and would be very valuable as one way of helping solve this dilemma.

Second, we support and encourage the cooperation and direct involvement of the Service with state and local government. Only through direct feedback with the states regarding their needs will a Landsat-type data distribution system effectively meet the varied and changing needs of the states. States will use the information and are currently organizing such programs. State and local governments willingly have participated in efforts--such as the ISETAP report* cited below--to provide advice and guidance for developing a distribution system, and have demonstrated a responsible initiative in the use of integrated data

*State and Local Government Perspectives on a Landsat Information System. Prepared by the Natural Resource and Environment Task Force of the Intergovernmental Science, Engineering and Technologh Advisory Panel (ISETAP). June 1978.

systems which include remote sensing data. California, for example, established the Environmental Data Center (EDC) that is charged with the coordination of natural and environmental resource data among all levels of government in the State. The EDC also encourages the appropriate use of new technologies in data gathering, including remote sensing and information management systems in state and local agencies. California is only one state among many that already are moving in the direction of integrated data and information services in natural resources, and that eagerly await a similar federal commitment.

Third, it is the concensus of many state and local governments that the nature of the data and services contemplated in this legislation are analogous to services already offered by the federal government in the population census and meteorological data service areas. Information on a nation or state's natural resources is essentially a public trust. The establishment of a publicly supported "natural resources census" may be the inevitable conclusion reached during the interim period specified in Senate Bill 663 for effective implementation of federal and state mandated resources programs. If the federal government were to run the service, cost recovery would of course be an important objective, but the service function would be paramount. This would be especially important to state and local governments that would almost certainly require periodic applications assistance and other technology transfer services. The ongoing improvements and refinements of remote sensing technology through NASA research and development efforts--that have helped maintain this country's technological lead--would also be assured if the earth resources information service ultimately were operated by the federal government.

Fourth, we believe that using the capabilities of the private sector in the design and construction of the System plus the promotion of competition among suppliers of services and equipment are the proper roles for private industry. It is normally not in the interest of the private sector to transfer technology to state and local government, but rather to develop a complete line of pertinent services and equipment that would support technology transfer efforts.

There should be ample market opportunities for industry during the initial seven year "interim" period and also later should the Service be retained in the federal government. The private sector can provide specialized data products for a smaller clientele much more quickly that any government system which serves a larger constituency. Industry can also provide low cost hardware and software to be used by state and local agencies in their applications of remotely sensed data. Federal commitment to establish an earth resources information service would provide considerable stimulus to the market. Other agencies and even foreign nations would be more comfortable with the use of remotely sensed data and in dealing with private industry if they could be assured of continuity in the availability of basic data.

Because it is our hope that the System ultimately will be operated by the federal government as a public service, we do not support the Earth Resources Information Corporation Act of 1979, introduced last Wednesday as Senate Bill 875.

In summary, on behalf of the Earth Resources Data Council of the Council of State Planning Agencies, I strongly urge the immediate development of a system for the continual distribution of satellite-based natural resources information as outlined in this bill, with certain reservations as indicated in the testimony. The data demands upon local and state government are rapidly increasingly while its purse strings are rapidly tightening. The time to act is definitely now.

Thank you

Council of State Planning Agencies
An affiliate of the National Governors' Association

APPENDIX E

Robert N. Wise
Director

May 14, 1979

Dr. Vincent V. Salomonson
Landsat-D Project Scientist
Mail Stop 193
NASA/Goddard Space Flight Center
Greenbelt, Maryland 20771

Dear Dr. Salomonson:

Enclosed are comments on several alternate specifications for Landsat-D products that you had requested from the Earth Resources Data Council at the end of March. The attached memorandum consolidates the views of Data Council members, most of whom have had experience or access to state personnel working with computer-assisted analysis of Landsat digital tapes to support selected state requirements. In spite of this experience, however, these state professionals were aware of an "understanding gap"--between state applications and engineering design--that made it difficult to assess with confidence the full impact of some of the proposed systems changes. The enclosed memorandum addresses the specific points requested as well as the concerns expressed when Data Council members did not have the same recommendations. A list of Data Council members is also included for your information.

I hope these comments will be useful to you as you proceed with the refinement of the Landsat-D system. On behalf of Sally Bay Cornwell and the Earth Resources Data Council, I would like to express appreciation for the expellent briefing that we received on March 29, 1979. It appears that there is much for us to learn about the engineering and cost structure of the new generation Landsats, as well as how we might make best use of these new data. We are willing to work with you to bridge the gap that exists between your technical understanding of Landsat-D and the needs of state programs.

Sincerely,

Peggy Harwood
Staff Associate for Natural Resources
Council of State Planning Agencies
(202) 624-7727

cc: Pitt Thome
Floyd Roberson
Alex Tuyahov

HALL OF THE STATES • 444 North Capitol Street • Washington, D.C. 20001 • (202) 624-5386

May 10, 1979

MEMORANDUM

TO: Dr. Vincent Salomonson
Landsat-D Project Scientist

FROM: Sally Bay Cornwell, Chairperson
NGA/CSPA Earth Resources Data Council

SUBJECT: Comments on Some Landsat-D System Parameters

LANDSAT-D ORBIT OPTIONS

The following options were outlined for the Landsat-D orbit:

Option 1. Skip orbit, 705 km, 16 day repeat period, 10% sidelap

Option 2. Skip orbit, 708 km, 20 day repeat period, 30% sidelap

Option 3. "Continuous" orbit, 715 km, 17 day repeat period, 16% sidelap

Option 4. "Continuous" orbit, 716 km, 19 day repeat period, 30% sidelap

Of these options, most Data Council members preferred option 4 for the following reasons: 1) this pattern is the most similar and thus expected to be the most compatible with Landsats 1-3; 2) most states have associated Landsat applications with inventory applications for which adjacent coverage is preferred; and 3) the 30% sidelap provides more opportunities to get cloud-free coverage within a short time period of a few days.

One Data Council member (Bernard Hoyer, Iowa) following discussions with others in his state concluded that option 1 would provide better coverage for the following reasons: 1) most applications would be in agriculture, and statistical in nature, so that adjacent coverage is not a prerequisite; 2) the shortest frequency of repeat coverage is preferred; and 3) considering the frequency

with which continuous data collection is interrupted by cloud cover or haze in some parts of the U.S., the skip orbit may have distinct advantages if the more "random" sampling pattern increases the chances of collecting data with minimal cloud cover--certainly it can't be any worse.

Have there been any studies or explanations that could shed light on this?

DATA PRODUCTS

Map Projections

Most Data Council members agreed that for some interim period Landsat-D computer products should be available with several projection options, including one option with control points only. Although the states realize that having one standard map projection available on all Landsat-D products would save 10% on NASA preprocessing costs there have not been enough assurances given that important information would not be lost or that the cost to the states would not be increased. In addition, states have already invested in software to register Landsat computer compatible tapes (CCTs) for use with existing mapped information which most often is on USGS base maps at 1:250,000, 1:100,000 and 1:24,000 scales--generally with Universal Transverse Mercator (UTM) projections. Other projections used by states are Lambert Conformal Conic (LCC) and Transverse Mercator (TM)--State Plane Coordinates--used for very large scale mapped of state and private land owernship. All of these projections share the following characteristics of importance to states: (1) areas are represented accurately and without distortion, (2) the projections are suitable for illustrating boundaries of ownership surveys, and (3) all these coordinate systems can be related easily to Latitude and Longitude. At least one state at this time (Texas) would prefer to have some control points identified in each scene that are tied to latitude and longitude without projections imposed.

Please note: The trend in states is to use Landsat CCTs in conjunction with other mapped information in automated geographic information systems GIS. It appears that once mapped information is in a GIS, projections are removed and only the coordinates of information elements are important. Thus, for Landsat CCTs, no matter what projection(s) is used, the most critical data for the user will be the careful selection of control points for the scene that are "accurately" referenced to commonly used coordinates such as latitude and longitude.

We can only re-emphasize the importance of providing continuity between the new generation data products and the old. Attention must be paid to details of importance to the growing operational user community--details such as CCT headers, other data format conventions, and software that would cost users time and money when trying to process these new data on systems designed to handle the existing CCTs.

With respect to film products, there is no doubt that Data Council members and other state users would prefer geometrically-corrected images. States have already voiced a preference for the UTM projection, but would accept Space oblique Mercator projection on film products as a second choice.

Resampling Methods

Those states that currently are processing Landsat CCTs are geometrically registering the scene after the data has been classified. Because the registration occurs after classification, Nearest Neighbor (NN) is the resampling method most familiar to state users. At this time, NN is more attractive to state users (than Cubic Convolution or CC) because the data element is not changed in value and can be restored to its original position.

If for an interim period both geometrically corrected and uncorrected

CCTs could be available (without the added wait necessary to back order the data), then states could become familiar with the advantages and disadvantages of geometrically corrected spectral data (probably using CC) and geometrically uncorrected spectral data for which states would have the option of using NN after classification. From Nick Faust, who was assisting Bruce Rado in Georgia, we understand that CC is valid (and in some scientific circles considered preferable) for geometrically correcting spectral data tapes before classification. If the geometric correction is performed after classification then NN is almost the only way to go. Of most concern to the states is the computer time necessary to resample these data--up to 50% of the cost of processing Landsat CCTs can be consumed in this process. If this continues to be the cost distribution--not to mention the difficulty of selecting control points--states may very well begin to prefer buying the geometrically corrected spectral data, providing it can be shown that important information is not lost doing so.

Pixel Sizes

Data Council members were most divided on this issue. All members, however, did prefer to have the multi-spectral sensor (MSS)pixel size as a multiple of the TM pixel size. The possibility of inseting TM data into MSS for site-specific and urban analysis is irresistable. Most states would prefer to have the MSS pixel size at $57m^2$ so as to be as compatible as possible with the current Landsat products. However, this would create a TM pixel of $28.5\ m^2$--an awkward size that Paul Tessar and others indicate could add as much as 10% to the already high cost of processing TM data. It is the choice between the 60/30 mix (for cost reasons), and the 57/28.5 mix (for compatibility reasons) that is causing the dilemma....

Is it possible to have both formats available for a limited period and/or for limited scenes on a trial basis? At any rate, it is important to the user community that techniques and software be developed to facilitate use of the older MSS data with that from Landsat-D, and/or to reduce the time and cost for processing TM data.

DATA DELIVERY TIME

The configuration for the system to preprocess, duplicate and distribute CCTs and film products is currently being designed. The actual configuration of the system will have many implications for data delivery times. We are not familiar with all of the technical issues to be decided, but are concerned with the bottom line--how long it takes to get an image or CCT. We believe, as do the authors of legislation in Congress, that there are enough operational users for considerable, creative attention to be given to this important part of the Landsat-D design. We strongly support the developing of a processing system capable of delivering data to users within 7-14 days from time of collection. We also believe that provisions should be available for even faster turnaround in times of emergency.

APPENDIX F

Council of State Planning Agencies
An Affiliate of the National Governors' Association

State Planning Information Report

Number 27
November 1978

CSPA Receives Major HEW Contract

CSPA has entered a contractual agreement with HEW to conduct a major two-year project in five states to demonstrate reforms which can be made to simplify and consolidate HEW planning requirements for states. Through the project, selected states will consolidate plans for various HEW programs; substitute their own planning processes for those presently imposed by HEW; receive planning requirement waivers whenever possible from HEW; and use the consolidated plans to obtain HEW program funds by FY 1981. Grants will be available for the participating states to cover some of the costs of the project.

This project offers a significant opportunity to streamline the federal-state planning process. States will be able to demonstrate their capability to respond to human service needs and federal requirements through their own planning and budgeting processes. This should strengthen the state role in the administration of federal programs, reduce paperwork, and improve coordination among human service programs.

The director for the project is Amanda St. John, formerly Director of the Office of Health and Social Services Policy Development in the Florida Department of Health and Rehabilitation Services. She has been involved in a variety of planning activities in Florida's integrated human services agency: Title XX, planning for coordinated services for federal funding, and developing a process for comprehensive planning and budgeting under the new district administrative structure in the reorganized Department.

CSPA Starts Earth Resource Data Project

On behalf of the National Governors' Association's Committee on Natural Resources and Environmental Management, CSPA has begun to advise the National Aeronautics Space Administration on the remote sensing and technology transfer needs of state and local governments. As of December 1, 1978, Peggy Harwood will be onboard as CSPA's Staff Associate for Natural Resources.

Peggy was recently a senior geologist with the Texas General Land Office, where she was in charge of environmental analysis and the assessment of natural hazards in the coastal zone. She also chaired the Texas Natural Resources Information System (TNRIS) Remote Sensing and Cartographic Committee.

Our work plan with NASA has several facets:

- Long Range Work Plan. CSPA will identify issues that are critical to the increased use of remote sensing data by

state and local governments, and prepare a detailed three year work plan addressing them.

- Earth Resources Data Council. During the initial phase of the project, CSPA will establish a panel with state representatives from each of the ten standard federal regions. Members will be key state policy makers with technology applications experience and a broad knowledge of state needs.

- Define State and Local Requirements for the Operational Landsat System. CSPA, in concert with the advisory panel, will document state and local requirements for Landsat data. The scope of this analysis will address technical system performance characteristics from the users' perspective; the nature and type of required data products or supporting services; and a variety of policy and institutional issues.

- User Communications/Information Flow. CSPA will conduct a two-way exchange of information on state applications with state and local users. We will also develop, print, and distribute a quarterly newsletter on Landsat applications and developments for state executives, and prepare a Landsat Policy Users' Brochure explaining Landsat technology to Governors, executive agency directors, and state policy staff.

- Improvement of States' Capacities for Landsat Applications. The present status of state applications of Landsat will be evaluated and various means of strengthening states' capacities for using Landsat will be assessed (including both traditional and innovative approaches). As part of this task, a Landsat Critical Issues Workshop will be conducted to discuss major alternatives for future use and operations of Landsat.

CSPA President, Peter Vanderpoel, in consultation with Governor Richard Lamm, has appointed an Earth Resources Data Council to oversee the project. The Council's members include:

· Region I	Dennis Malloy	Vermont
· Region II	Chuck Guinn	New York
· Region III	Edwin L. Thomas	Maryland
· Region IV	Bruce Rado	Georgia
· Region V	Don Yaeger	Minnesota
· Region VI	David Ferguson	Texas
· Region VII	Bernard Hoyer	Iowa
· Region VIII	Leonard Sloskey	Colorado
· Region IX	Sally Bay Cornwell	California
· Region X	Paul Cunningham	Idaho

Ex-Officio

- Representative of Governor Carroll, NGA Chairman
- Representative of the National Conference of State Legislatures

Council of State Planning Agencies
An Affiliate of the National Governors' Association

State Planning Information Report

Number 29
June 1979

STATUS OF "701" PROGRAM IN DOUBT

As most of you know, the Carter Administration has requested $40 million for the 701 Program in FY 1980. This sharp reduction from this year's appropriation of $53 million will have a severe impact on those states, areawide agencies, and local governments that are using "701" monies to address community development, housing and land use problems.

The activities supported under "701" have helped state and local officials obtain a better understanding of development issues and devise solutions that are sensitive to local needs. The program has also brought some order to the frequently confusing array of federal programs and has built in states and localities an ability to ensure that these programs address specific state and local priorities. The careful coordination of planning for housing, transportation, energy, economic development, and environmental quality has prevented the waste of federal, state and local dollars.

As the main funding source for OMB's A-95 intergovernmental coordination process, "701" has also saved millions of dollars by eliminating duplication and inconsistencies from federal grant applications. Maintaining these activities will increase in importance as government agencies at all levels try to make do with less. Finally, "701" program has enabled states and areawide agencies to provide technical assistance and management services to smaller communities that lack the budget and staff to meet pressing development problems.

CSPA supports Senator Patrick Leahy's efforts to continue "701" funding at its current level. A twenty-five percent cut in "701" funding is not in line with other reductions in the federal budget. The activities carried out by state and local governments under "701" are a wise investment, one which will ensure the effective use of literally billions of federal, state and local dollars.

EDA REAUTHORIZATION

As of this writing, the final disposition of the legislation reauthorizing the Economic Development Administration (EDA) is far from clear. EDA, which is quite popular with Congress, will surely see its legislation enacted in some form. But such crucial issues as the composition of the formula designating areas eligible to receive EDA assistance, the proper focus of the agency's financial assistance programs, the precise funding levels provided for individual programs, and the eligibility of the states to receive various forms of assistance and establish priorities for use of EDA monies are still undergoing intensive debate and revision.

EARTH RESOURCES DATA ACTIVITIES

Earth Resources Data Council Meeting

The advisory group for the joint NGA/CSPA Earth Resources Data Project held its second meeting March 29-30, 1979 in Washington. ERDC members spent a day and a half discussing technical, institutional and policy-related issues concerning natural resource data. On the agenda were discussions of proposed legislation to create an operational remote sensing satellite system (S. 633, the Earth Resources Data Information Act), related testimony invited from the ERDC and future project activities. In addition, the ERDC heard presentations on the following activities: Domestic Information Display System (DIDS); NASA Technology Transfer Activities; Landsat-D System Design; NGA State DATA Needs Assessment Project; Five Agency Project re Natural Resources Classification and Inventory Procedures; and the proposed Interagency Nationwide Aerial Photography Program. The ERDC emphasized that states should take as much initiative as possible to assure that they get the data they need. It's becoming especially important for states to influence developments in natural resources data and develop the analytical capabilities necessary to implement state programs.

The Earth Data and Information Service Act of 1979

An important part of the recent ERDC meeting was a discussion of S. 663, introduced by Senator Adlai Stevenson III (Illinois); the bill would create the institutional arrangements necessary to provide Landsat-type images to all users and remove this technology from such experimental constraints as unannounced changes in data formats and long delays in data delivery. Sally Cornwell, ERDC Chairwoman, was invited to testify at a hearing on this legislation on April 9, 1979. At the meeting, ERDC members reached the following conclusions:

- An institutional framework--such as described in S. 663--is needed to satisfy the requirements of the growing operational user community (including states) and to allow the direct involvement of state and local governments.

- Ongoing technology transfer should be provided for two reasons: states are adopting Landsat into their operation at various rates, and changes continue to take place in sensor technology and available data products.

- It makes sense to use the private sector to design and construct the system and to promote competition among suppliers of services and equipment.

- Greatly increased prices for data may reduce state and local government use. (S. 663 requires that the total cost of the system--including construction and launch of the satellite--be recovered in data sales.)

- The data and services contemplated in S. 663 are analogous to services already offered by the federal government in the population census and meterorological data service areas. Information on natural resources is a public trust. Trends are already seen towards a repetitive, ongoing inventory or "census" of natural resources.

For further information on this proposed legislation, contact Sally Cornwell at (916) 322-3784 or Peggy Harwood at (202) 624-7727.

Domestic Infonnation Display System

The ERDC attended a demonstration of the Domestic Information Display System (DIDS) now under development at NASA Goddard Space Flight Center in Greenbelt, Maryland. DIDS is a trial project in which 15 federal agencies are integrating their satistical data into an automated geographic display system; the system is especially useful for policy and budget formulation and analysis. Because the project is national in scope, the data base it relies on is necessarily general, and is largely summarized at the state level. Cooperating agencies include:

Bureau of the Census
Bureau of Labor Statistics
Community Services Administration
Department of Agriculture
Department of Energy
Department of Health, Education and Welfare
Department of Housing and Urban Development
Department of Justice
Department of Transportation
Department of the Treasury
Economic Development Administration
Environmental Protection Agency
National Oceanic and Atmospheric Administration
United States Geological Survey
Veterans Administration

For more information on DIDS, contact:

Executive Secretariat
DIDS Project
Bureau of the Census
Data Users Service Division
Room 3069-3
Washington, D. C. 20233
Attention: Martha Wyeth
(301) 763-5483 or (202) 673-7962

Landsat-D System Design

In an effort to better understand developments in satellite remote sensing, ERDC members attended a briefing on the status of Landsat-D system design--viewed as the last experimental satellite of the Landsat series. The basic objective for Landsat-D is to ease the transition to images of the earth's surface that will provide greater detail. Unresolved issues include: orbit characteristics, which will determine whether images are collected every 17 or 20 days, and whether adjacent scenes will be collected every other day or more randomly; and new data products--such as images with scanning distortion removed. As a result of their experience with earlier Landsat data, members were invited to comment on the resolution of these issues. Copies of the technical memorandum submitted by Sally Cornwell, ERDC Chairwoman, are available from Peggy Harwood at (202) 624-7727.

Technology Transfer Activities at NASA

The Technology Transfer Division at NASA Headquarters is responsible for assisting potential users with the many different types of technology and data available from NASA research. During a presentation at the second ERDC meeting, Division Director Floyd Roberson pointed to state efforts to develop information systems or data centers as a means to save money and improve the usefulness of data in addressing state problems. He also spoke of the need to better understand existing program and funding relationships between state and federal agencies. A preliminary NASA study found several federal environmental programs which could use Landsat-type data to assist their implementation (EPA 208, Coastal Zone Management, HUD 701 and others). Further examination of these relationships could help target NASA technology transfer resources in a way to complement the efforts of other federal agencies and increase available assistance to states.

NASA Regional Remote Sensing Applications Centers, which work only with state applications, represent the technology transfer program area most visible to the states. To learn more about satellite remote sensing, opportunity, contact Floyd Roberson at NASA Headquarters, Washington, D. C. (202) 475-2220.

WESTERN REGION APPLICATIONS PROGRAM (WRAP)

Dr. Dale Lumb
Chief; Technology Applications Branch
NASA/Ames Research Center
Moffett Field, CA 94035
(415) 965-5897

EARTH RESOURCES LABORATORY (ERL)

Wayne Mooneyhan
Director, Earth Resources Laboratory
NSTL Station, MS 39529
(601) 688-2047

EASTERN REGIONAL REMOTE SENSING APPLICATIONS CENTER (ERRSAC)

Dr. Phillip Cressy
Earth Resources Branch
NASA/Goddard Space Flight Center
Greenbelt, MD 20771
(301) 982-2658

A Proposed Nationwide Aerial Photography Program

Specifications for a 3-5 year program to collect high altitude photography of the U.S. were developed in August 1978 by federal agencies that collect or use aerial photography. Current agency budgets may allow the program to be initiated this year. Otherwise the earliest date for which funding can be sought will be fiscal year 1980. The expected cost of this type of coverage (two cameras at about 45,000-foot altitude) should be equal to or less than $5.25 per square mile--the cost of flying with one camera at a lower altitude than proposed. At this rate, it will cost about $15 million to cover the U. S. Hopefully, "economies of scale" will keep costs down, especially by

contracting with one supplier. The U. S. Geological Survey will be administering the contract for flying services and will act as a focal point for this effort, with the guidance of an interagency steering committee.

The ERDC was assured at its second meeting in March that every effort would be made to try to meet contributing state requirements, although the mechanism for doing this has not yet been determined. Currently, the only mechanism is a steering committee--chaired by the U.S. Geological Survey--that developed the proposal and will coordinate its implementation. The five-member steering committee includes: the Soil Conservation Service; the Corps of Engineers; the Defense Mapping Agency (Advisory); the Geological Survey; the Bureau of Land Management; the Office of Surface Mining; and the Tennessee Valley Authority.

At a recent meeting, however, most state requests to alter project priorities were unable to be included this first year. States were asked to contribute about $1.00 per square mile to assist coverage of their states, so that the funds donated by federal agencies could be used to extend first year coverage. Only about two of the five states that responded with funds this fiscal year appear likely to have their requests added to the program. Since the program is getting started with limited funding taken from federal programs with an urgent need for this data, it appears that there will be more flexibility in future years when funding is greater and on-time coverage has been achieved.

For further information on the program, contact:

Paul Antill
U. S. Geological Survey
Reston, Virginia
(703) 860-6212

or

Jerome Gockowski
USDA Soil Conservation Service
Washington, D. C.
(202) 447-6923

FIVE AGENCIES JOIN NATURAL RESOURCES CLASSIFICATION AND INVENTORY PROCEDURES

Five federal agencies have recently agreed to develop common classification systems and inventory procedures. The agencies include: the Bureau of Land Management, Fish and Wildlife Service, the Forest Service, the Soil Conservation Service, and the Geological Survey. The issues to be addressed include the classification system, inventory procedures, and information management. The classification system is currently receiving the most attention.

In April, the five agency group endorsed the following points:

- It was agreed to develop four component classification systems: soil, vegetation, aquatic and land forms;
- While the soil and vegitation components are quite far along, the new aquatic and landform classfications require substantial work;
- Coordination is needed for mapping procedures, sampling techniques and integration of new systems with current agency practices;
- All data gathered by the five agencies will be translated into the four components; and
- A publication should be prepared explaining the classification system and related issues.

Council of State Planning Agencies
An Affiliate of the National Governors' Association

State Planning Information Report

Number 28
March 1979

CSPA-HEW PLANNING REQUIREMENTS REFORM PROJECT

HEW has announced that the Planning Requirements Reform Project has been expanded to allow 12 (instead of 5) states to participate in a demonstration project to substitute state planning and budgeting processes for federal planning requirements. The 12 states selected as demonstration states are: Arkansas, Connecticut, Illinois, Massachusetts, Missouri, New Jersey, New York, North Carolina, Utah, Washington, West Virginia and Vermont.

This project is a major initiative of the Administration and has received enthusiastic support by states and HEW.

Thirty-two states responded to Secretary Califano's announcement of the demonstration; twenty-four Governors submitted proposals. It was this overwhelming response which led HEW to expand the project.

To expand interest in the project, CSPA will establish a 50-state information network for planning simplifications in human services. The network will be used to keep all states up-to-date on the progress and findings of the project and to provide a focal point for sharing information among states on state human services planning innovations.

CSPA RECEIVES NSF GRANT

The Council of State Planning Agencies (CSPA) in conjunction with the National Governors' Association Center for Policy Research, has received a grant from the National Science Foundation (NSF) to assist Governors and their staffs strengthen their capacity to use scientific and technical resources in resolving major public policy issues.

In 1977, Congress authorized $2.5 million for NSF to assist the states develop their ability to apply science and technology resources to decision making processes of the Executive and Legislative branches of State government. Study grants were made to 49 state governments under one of two categories:

(1) Development of a mechanism to integrate science, engineering and technology resources into the policy formulation process.

(2) Improvement of a mechanism to integrate more effectively science, engineering and technology resources into the policy formulation process.

Since this direct funding to the states will cease October 1979, the National Science Foundation has contracted with NGA and CSPA to continue the function by providing technical assistance to the states on policy development structures and processes and to assist the States on major public policy issues.

Hall of the States, 444 North Capitol Street, Washington, D.C. 20001 (202) 624-5386

EARTH RESOURCES DATA COUNCIL HAS FIRST MEETING

The advisory panel for the NGA/CSPA Earth Resources Data Project had its first meeting in Denver, Colorado on January 17-18, 1979. All but two Data Council members attended the first session to review and discuss proposed project activities designed to improve the ability of states to use natural resources data. A representative from the National Aeronautics and Space Administration (NASA) also attended to orient the Council to programs for transfering NASA developed technology to states and other users.

The Earth Resources Data Council, Chaired by Sally Bay Cornwell from the California Governor's Office, covered an extensive agenda in the two day meeting. Among the more important items discussed were a draft charter for the Council, project activities for the next six months, and an outline for a long-range work plan.

One important opportunity for the Council during the next six months was introduced by Leonard Slosky, the Council member representing Federal Region 8. Mr. Slosky, who is from the Governor's Office in Colorado, is also the Staff Director for the Natural Resources and Environment Task Force of the Intergovernmental Science, Engineering and Technology Advisory Panel (ISETAP). He has been invited to represent ISETAP on two intergovernmental studies being chaired by NASA on future satellite remote sensing systems. One study will be considering integration of defense and civilian satellite systems to better support federal agencies and other users. The second study will be investigating the involvement of the private sector especially in providing services to users. He indicated the Council could be especially useful in defining state requirements for data that would be used to design an operational civilian satellite system.

In discussing a long-range work plan for the Earth Resources Data Project, the Council focused on two program objectives: (1) to improve state-federal coordination on natural resources data issues, and (2) to provide state services that promote better use of natural resources data by states.

The Earth Resources Data Council is composed of state representatives appointed from each of the 10 standard federal regions to review project activities. Council members include key policy and planning staff with experience applying new technology to state problems and a broad knowledge of natural resources data needs. The Council will form a part of a communication network on natural resources data issues that will be used:

- for promoting the interest of states in natural resources data;
- for advising NASA on research and training needs of states relative to satellite remote sensing and other NASA technology development efforts;
- for informing state officials of potential advantages and disadvantages of new developments in natural resources data and associated technical and policy issues; and
- for supporting and strengthening efforts that provide learning opportunities for states in new technology.

NASA/INDUSTRY CONFERENCE ON TECHNOLOGY TRANSFER TO STATES

In response to President Carter's recent Space Policy announcement calling for an increased role for private industry, NASA held a conference in Washington, D.C. in October to define the role of private industry in Landsat technology transfer to the states.

Chairperson of the Earth Resources Data Council, Sally Bay Cornwell, presented the states' perspective on the appropriate role for private industry on NASA's technology transfer to the states. She said that federal government should provide states with appropriate data gathering tools and products since states need the data to satisfy federal requirements. Private industry, she went on, should make available equipment, software, data products, and advisory assistance to state/local agencies. She concluded by requesting NASA to carry out the actual technology transfer through its Regional Application Program, keeping in mind that many states prefer developing their own capabilities where possible.

The following are some of the statements made at the conference:

- o At this early stage of technology transfer, it is important for the federal government to provide leadership. To turn the effort over totally to the private sector now would fragment its development.

- o State governments prefer to form a partnership with the federal government rather than the private sector for technology transfer because:

  - For some applications the private sector's profit motive runs counter to the idea of public service.

  - State governments traditionally have not budgeted the time or funds to experiment with unproven technologies. Deadlines for policy decisions and program implementation are very short-term.

- o In general, state agencies have prefered to establish their own capabilities. County and City governments traditionally contract more with consultants than do state governments. Aerospace and computer industries, rather than local consulting firms, are the ones most vigorously pursuing the state/local market for remote sensing technologies, rather than traditional consultants who need training in Landsat uses.

- o State governments, while preferring to develop their own capabilities, are interested in using the private sector for special products as needed. Among the current barriers are:

  - The idea that it is too great a task to research which vendors provide what services.

  - The fact that most state agency staff lack sufficent expertise in this new technology to know what questions to ask of vendors to evaluate their relative merits.

- o It was concluded that it is too early in the stage of Landsat technology transfer to the states for the federal government to relinquish its responsibility to private sector.

Participants made the following recommendations to NASA and private industry:

1. Because states have accepted high technologies at varying rates, NASA should continue its technology transfer efforts through the RAP program during the next five years.

2. NASA should make available to state governments a compilation of private sector capabilities and products.

3. Private industry should prepare some guidelines on "Questions Every Government Program Manager Should Ask About Landsat Products and Services." Appropriate vendors should provide guidance on equipment, software, data products, and advisory assistance.

4. NASA should conduct training programs when state and local governments first make use of satellite remote sensing. NASA should eventually turn this program over to the university systems.

MEETINGS OF NOTE

American Planning Association, October 13-17, 1979 in Baltimore, Maryland.

Council of State Community Affairs Agencies, Annual Meeting, April 22-25, 1979 at the Sheraton Palace in San Francisco, California.

Council of State Housing Agencies, Annual Conference, December 5-9, 1979 at the Boston Park Plaza in Boston, Massachusetts.

Council of State Planning Agencies, Annual Legislative and Budget Briefing, April 8-10, 1979 (in conjunction with NASBO). Seminar for New Planning Directors, April 10, 1979, Hyatt Regency and Hall of the States, Washington, D. C.

National Association of State Budget Officers, Annual Legislative and Budget Briefing, April 8-10, 1979, Hall of the States and the Hyatt Regency, Washington, D. C. (in conjunction with CSPA).

National Association of State Budget Officers, Annual Meeting, July 22-26, 1979 in Saratoga Springs, New York.

National Governors' Association, Summer Meeting, July 8-10, 1979 at the Galt House in Louisville, Kentucky.

Neighborhood Revitalization Conference, National Center for Urban Ethnic Affairs, March 28-30, 1979, at the Sheraton St. Louis Hotel at Convention Plaza.

Council of State Planning Agencies
An Affiliate of the National Governors' Association

State Planning Information Report

SUPPLEMENT

Number 30
September 1979

STATE DATA CENTERS FEATURED AT CSPA ANNUAL MEETING

On Tuesday afternoon, September 25th, the CSPA Earth Resources Data Council is sponsoring a workshop on the Policy Uses of State Data Centers. State efforts to coordinate data and information will be represented by workshop participants from Texas, Minnesota, Vermont and Louisiana. It is the purpose of this workshop to inform State Planners of innovative uses of State Data Centers in support of policy development and implementation, and to illustrate different styles of successful Data Center development.

State Data Centers have resulted in part from the relatively high costs associated with the collection, handling and analysis of data needed for planning and management activities in state government. Pooling resources at the state level has allowed states to have access to more data and analytical services than could be afforded by individual programs or agencies. Participants not only will give some history and rationale for developing Data Centers, but will share examples of how this concept has assisted the formulation and implementation of state policy in economic development, facility siting and natural resources. In addition, some attention will be given to the advantages and disadvantages of state-federal cooperative data programs, such as provided by the Bureau of the Census and the U.S. Geological Survey--e.g., the National Cartographic Information Center and the Land Use and Data Analysis (LUDA) Program.

For a summary of workshop proceedings, contact: Peggy Harwood, Staff Associate for Natural Resources, The Council of State Planning Agencies, 444 North Capitol St., Washington, D.C. 20201 or call (202)624-5386.

EARTH RESOURCES DATA COUNCIL MEETS

The advisory group for the joint NGA/CSPA Earth Resources Data Project held its third meeting June 18-20, in San Francisco to discuss issues related to the development of state data capabilities and services. Topics discussed included progress towards an operational remote sensing satellite system, a major effort to coordinate natural resources classification and inventory procedures by five federal agencies, and the proposed nationwide high-altitude aerial photography program (see June 1979, State Planning Information Report). Also discussed were two data studies in progress at the Council of State Governments, and NASA's response to state and local agency views on a Landsat information system.

Progress Towards An Operational Remote Sensing System

Two important policy studies related to the future of operational remote sensing satellites have finished the first phase of information gathering, and are in the process of completing final reports. Both studies were the result of President Carter's Space Policy released in October of last year, in which the mandate was given to further explore the possible integration of capabilities for future satellite systems, and the role of the private sector in the establishment of an operational syste,. Leonard Slosky of Governor Lamm's staff in Colorado, has been the only State representative on both the Integrated Remote Sensing Satellite Study (IRS^3) and the Private Sector Investment Study (PSIS). Leonard, a member of the Earth Resources Data Council, is Staff Director for ISETAP, an advisory panel to the President's Office of Science and Technology Policy, made up of elected state and local officials and legislators. Earlier this year action on two Senate Bills, S.663 and S.875--introduced by Senators Adlai Stevenson and Harrison Schmitt, respectively, had been postponed until the Administration had the results of these two studies. Although differing somewhat in approach, both bills would provide for a federal commitment to an operational satellite system--a commitment that States long have urged be made to support cooperative state-federal environmental programs.

Federal Data Coordinating Activities

Five federal agencies--the Bureau of Land Management, Forest Service, Soil Conservation Service, Fish and Wildlife Service, and the U.S. Geological Survey--have vompleted some progress towards developing compatible classification and inventory systems for soils, water, landform,and vegetation information and have requested assistance from CSPA in coordinating with the States. The Data Council has agreed to help provide a state voice in this process. Peggy Harwood, Staff Associate will represent NGA/CSPA and the Data Council at meetings of the Coordination Group, and will be preparing a proposal in coop ation with the National Conference of State Legislatures and the Council of State Governments to disseminate information on this effort to the States.

In a similar action, the Data Council agreed to closely follow and provide state input to the effort to establish a nationwide high-altitude aerial photo coverage program. Although state and local participation were invited, there have been few opportunities to change coverage priorities to meet needs outside the participating federal agencies for the first year.

CSG Data Studies

The Council of State Governments (CSG) is conducting two studies for the Earth Resources Data Project. One report--the "Integrated Use of Landsat Data and State Environmental Resource Information Systems"--reviews the interrelationships of state information system development, Landsat analysis capability and participation in NASA Landsat technology transfer programs.

In another study, an Environmental Resource Data Questionnaire was sent to all states to assess the need for a national data exchange to be offered by CSG. The general consensus of the survey was that a "data base" of comparative information on state environmental programs should be established. Initially, the information service would direct its efforts toward five priority areas identified by the 82 responses. These areas include: water pollution control, water resources management, air pollution control, hazardous materials management, and fish and wildlife management.

For further information on Earth Resources Data Council activities contact: Bruce Rado, Acting Chairman at (404)656-3214 or Peggy Harwood at (202) 624-7727.

CEQ AND USDA INITIATE NATIONAL AGRICULTURAL LANDS STUDY

The Council on Environmental Quality and the U.S. Department of Agriculture signed an agreement in June 1979 to undertake a jointly sponsored national study of the availability of agricultural lands, the extent and causes of their conversion to other uses, and the ways by which these lands might be retained for agricultural uses. The study shall be completed by January 1, 1981, upon submission of the study report to the President.

A major component of the study is broad public involvement. Significant data on local problems, situations, and responses to heightened competition for agricultural land will be obtained from the public participation. This would be accomplished by conducting a series of public workshops (approximately 17) throughout the country. It is anticipated that these would be held during the months of October and November 1979. The four USDA Centers for Rural Development will be conducting the workshops for the study. The following types of information will be sought during these workshops: (1) problems stemming from increased competition for, or actual conversion of, agricultural lands; (2) ways to avoid or mitigate the most important problems cited; and (3) values that are threatened by current trends in land use.

For more information on this major study, contact: Bob Gray, Executive Director, National Agricultural Lands Study, New Executive Office Building, 722 Jackson Place, N.W., Washington, D.C. 20006 or call (202)395-5832.

National Conference of State Legislatures. A Comparison of State Surface Mining Data Requirements to Public Law 95-87, the Surface Mining Control and Reclamation Act of 1977. NCSL, Natural Resources Information Systems Project, 1405 Curtis St., #2300, Denver, Colorado 80202. June 1978

This report is a very handy reference for much more than data requirements of state surface mining programs. Sections incl[illegible]: an inventory of State Surface Mining Laws, comparison of State law[illegible] matrix format, a narrative summary of state programs--including a state [illegible]gram contact, and a glossary of terms commonly used in surface mining activities.

Texas Natural Resources Information System and the Texas Department of Water Resources. Locating Reservoirs with Landsat, "A Texas Example." TNRIS, P.O. Box 13087, Austin, Texas 78711. 1979

This well written paper was presented to the American Society of Civil Engineers to be included in the publication: Case Studies of Applied Advanced Data Collections and Management. This work was done in direct support of the Federal National Dam Safety Act, and should be of interest to those who desire to know more about Landsat applications and the benefits of State Data Centers in support of state programs.

(The following reports reflect the growing interest in states (1) to compile useful references on basic data, including in state sources, and (2) to establish some standard formats for land use/land cover classification systems. Although not comprehensive, these documents represent a useful sample of ways states can help reduce the high costs of data for various programs by sharing available data and agreeing to standard data formats.)

Minnesota State Planning Agency. 1978 Annual Report of Mapping and Aerial Photographic Activities in Minnesota. Minnesota SPA, Land Management Information Center, 15 Capitol Square Bldg,St. Paul, Minnesota 55101. May 1979.

The Minnesota State Planning Agency has as a major function the supply of information and data to state users. This report summarizes photo and map holdings of the major federal, regional and state agencies who contract for aerial photography in Minnesota or who have mapping programs in progress. Complementary guides published earlier include the Inventory of Aerial Photography and Other Remotely Sensed Imagery of Minnesota. (1977)and A Directory of Minnesota Maps (1977).

Minnesota State Planning Agency. A Classification Manual for Land Cover and Land Use in Minnesota. Minnesota SPA, 15 Capitol Square Bldg., St. Paul, Minnesota 55101. 1978.

The chief objective for this manual is the standarization of terms used to describe land cover and use so that the studies and inventories of various units of government in Minnesota may be comparable and compatible. A two-part classification scheme with separate sections for land cover and land use was determined to be the most desirable format for requirements in Minnesota. Consequently, the manual contains two hierarchiacal levels of terms for both sections and describes the procedure for extending the classifications to Level III or more, should such extension be required. Standardization of the classifications include only the two levels presented.

Louisiana Dept. of Urban and Community Affairs. Louisiana Data Locator Guide for State and Local Officials, Louisiana DUCA, 5790 Florida Blvd., Baton Rouge, Louisiana 70806.

This document presents major data holdings of federal, state and substate agencies in Louisiana. The primary objective is to report major data holdings and key identifiers—such as the agency that holds the data, contact person within the agency, and broad descriptors of the data items. This document should serve as a convenient reference for use in the identification and collection of pertinent planning, policy and research data.

Louisiana State Planning Office. Louisiana Planner's Mapping Guide. Louisiana SPO, 4528 Bennington Avenue, Baton Rouge, Louisiana 70808. Third Printing, November 1976.

This manual is intended to assist planners with a variety of mapping needs including compatible formats. The manual provides a discussion of basic data elements required for adequate maps, appropriate scales to be used, and coordinate systems most frequently used in Louisiana. It contains a section on land use classification and the functional highway classification system. It also provides information on the availability of the different types of maps for the state, and contains a section on sources of aerial photography available to planners.

Texas Dept. of Water Resources. Land Use/Land Cover Maps of Texas. TDWR, 1700 N. Congress Avenue, Austin, Texas 78711. Second printing 1978.

This atlas of land use/land cover information was initiated as part of a program to develop the water quality management plans required by Section 208 of the Federal Water Pollution Control Act Amendments of 1972. The data was originally compiled by manual interpretation of 1973 and 1976, Landsat-1 and -2 imagery (spectral bands 4,5, and 7) at a scale of 1:250,000. Level 1 land use/land cover categories were mapped as defined by the U.S. Geological Survey in 1976. Of special interest to states is that the cost for Landsat data for this project did not exceed $10,000--while the cost of new aerial photography for a state the sixe of Texas (about 270,000 square miles) would have been about $1,000,000.

Florida Dept. of Transportation. Land Use, Cover and Forms Classification System--A Technical Manual. Florida DOT, State Topographic Office, Remote Sensing Center, Tallahassee, Florida 32304. May 1979

The purpose of this manual is to assist land resource data coordination--by establishing a uniform land classification system that can reduce duplication of effort within the various state agencies and increase the value of data for serving multiple purposes. This system was designed to be compatible with the U.S. Geological Survey Land Use/Land Cover Classification System, yet allowing flexibility for modification without seriously impairing the exchange of data. Accompanying this report is a section on mapping physiographic features previously not associated with land use inventory. Soils, drainage, and geologic features affect land use in many respects and, therefore, also must be included in the information used by planners in making land use decisions.

ENVIRONMENT AND NATURAL RESOURCES

Council on Environmental Quality. A Survey of State Programs to Preserve Farmland. Washington, D. C. April 1979.

This study surveys state farmland preservation laws. Twelve methods of preservation--including preferential tax assessment, land use commissions and agricultural zoning--are identified and existing state statutes cited. Recent efforts to change these statutes are also mentioned: Site visits to four states are described and discussions with legislative and executive agency staff members summarized. The bibliography in the section of the report is especially helpful in providing sources on state efforts to preserve farmland.

Council of State Governments. State Agriculatural and Land Issues. Iron Works Pike, Lexington, Kentucky 40578.

This draft paper , prepared with support from the National Science Foundation, is scheduled for final printing in the fall. The report discusses a wide range of agricultural, land and related issues including farmland preservation, agricultural water problems and farm financing. It is an introduction to these many issues rather than a detailed analysis of any one of them. The report also discusses the state roles and responsibilities, including planning and management, within the state-federal relationship. While accepting that a large federal presence is inevitable in agricultural policies, the paper argues that states can and should be more actively involved in these policies and that agriculture must be recognized in state planning.

American Land Forum. Land & Food The Preservation of U. S. Farmland. American Land Forum Report, Number 1, Spring 1979. 1025 Vermont Avenue, NW, Washington, D. C. 20005.

This report is the first in a series of publications on land management by the American Land Forum (ALF) and is the result of an ALF "farmland forum" attended by officials from interest groups, universities as well as from federal, state and local government. The report discusses various farmland protection efforts including development rights purchase, districting and regulation. It then attempts to answer such questions as "What is working and what isn't?", "Are new approaches needed to break the logjam?", and "Is there a federal role, and, if so, what is it?". The report itself is supplemented by edited comments of forum participants which are inserted at various points in the text. Also included are background materials, a bibliography, a list of related organizations and agencies, and the roster of forum participants. Overall, the intention of the volum is to provide policy makers and analysts with a summary of the issues involved with farmland preservation and present some ideas and resouces that can be used in policy planning.

Idaho Bureau of Economic Resources and Community Affairs. Agricultural Land in Idaho. Boise, Idaho 83720.

The primary concerns of this report are (1) methods used in Idaho counties to define agricultural land; (2) discussion on the opinions of county planning officials on the need for agricultural land protection through regulation and other means; and (3) an evaluation of agricultural land techniques that would be useful in Idaho. The report is based on an extensive literature review, personal interviews and survey responses from county planning and zoning commissions. Definitions of agricultural land may be especially useful to officials attempting to draft comprehensive plans.

Minnesota State Planning Agency. Minnesota Cropland Resources. St. Paul, Minnesota 55101. May 1979.

This report addresses the necessity of knowing present use, location, extent and quality of Minnesota farmland in order to effectively formulate policies for the future. Included is a process for locating and ranking cropland productivity potential of soils. Soil mapping and ranking programs are discussed and a detailed methodology is provided. Also included is a series of maps giving details on the following areas: physical/chemical characteristics of soils; climate patterns; climate/soil combinations; land use limitations; ownership limitations; and cropland productivity potential. This report would be very useful to officials in other states who are considering such a study to gain the information needed for effective planning.

National Governors' Association. State Programs to Preserve the Family Farm. NGA Center for Policy Research, 444 North Capitol Street, Washington, D. C. 20001.

This report is presently in draft form and will be ready for final distribution sometime in the fall. It provides examples of innovative state programs to preserve the family farm in the areas of taxation, direct marketing, technical assistance, corporate and alien ownership, and capital and credit. Also included are a series of tables which give state-by-state responses to a family farm survey conducted during the summer of 1979. A contact list of state officials is provided to help facilitate information sharing on these programs to other interested state officials who are formulating similar policies and programs.

United States Department of Agriculture. Soil and Water Resources Conservation. Act, 1980 Appraisal. Review of draft, Part 1, Washington, D. C.

This report analyzes the status and conditions of soil, water and related resources. It also identifies resource areas that are of public concern and compares these concerns with available data on conservation problems. Chapter headings of special interest to state policy makers include "Major Uses of Nonfederal Land" and "Prime Farmland". Also included is information from a brief survey of state laws dealing with conservation of soil, water and related natural resources and a discussion on representative state laws in this area.

United States Department of Agriculture. A Report to Congress on the Nation's Renewable Resources RPA Assessment and Alternative Program Directions. Washington, D. C. 20013.

This volume is a draft of a report that will be submitted to Congress in early 1980. It assesses the renewable resource situation on forest and range lands and also identifies alternative directions for Forest Service Programs. Trends in demands and supplies of forest and range products as well as the implications of those trends are also discussed. The alternative program directions discussed include cooperative and assistance programs with states.

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EARTH RESOURCES DATA PROJECT

The Council of State Planning Agencies (CSPA), in cooperation with the National Governors' Association's Committee on Natural Resources and Environmental Management, has begun to inform the National Aeronautics and Space Administration (NASA) on the problems of state and local governments in obtaining and making use of natural resources data. Not only are the states now the last to hear about new science and technology that could save time and money, but the needs of states usually have not been known or considered when research activities are planned. New equipment and types of data can be difficult to justify in budgets for established state programs—often because these new technologies simply have no track record in state and local applications.

One example of the many new technologies being developed by NASA is Landsat, a satellite that collects images of the earth's surface from an altitude of about 560 miles. These images—"satellite remote sensing data"—provide a unique source of information about the earth's resources, covering as they do an area of about 10,000 square miles every 18 days. The opportunities for states to use Landsat images in environmental resource monitoring and other applications are enormous, but so are the difficulties they face in gaining access to this technology.

CSPA, in cooperation with NASA and other state-affiliated groups with an interest in natural resources data, will build on lessons learned from Landsat technology to improve communication networks and opportunities for states to obtain new technologies appropriate to their needs. Important elements of the Earth Resources Data Project include:

Earth Resources Data Council

CSPA will rely on an advisory panel composed of state representatives appointed from each of the 10 standard federal regions to review project activities. Council members include key policy and planning staff with experience applying new technology to state problems and a broad knowledge of natural resources data needs. The Council will form part of a communication network on natural resources data issues that will be used:

- for promoting the interest of states in natural resources data;
- for advising NASA on research and training needs of states relative to satellite remote sensing and other NASA technology development efforts;
- for informing state officials of potential advantages and disadvantages of new developments in natural resources data and associated technical and policy issues; and
- for supporting and strengthening efforts that provide learning opportunities for states in new technology.

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Research on State Government Requirements and Use

CSPA, in cooperation with the Earth Resource Data Council, will coordinate two studies to provide useful information to state officials (Governors, planning directors and their staffs) responsible for natural resources management and planning activities:

- Environmental Resources Data Use and Management in State Government with respect to Landsat Data. A focus for this paper is the extent to which states have integrated and coordinated Landsat with state-level natural resources data systems. State data systems have been initiated in most states as a response to the increasing volume of data required to implement natural resources programs. The paper also will investigate the present use of Landsat data for meeting requirements of state programs—especially those carried out at the state level as a result of federal legislation.

- Requirements for an Environmental Resources Information Network. As well as learning to use new techniques and new types of environmental data from NASA and other federal agencies, states would benefit by being able to learn from each other. This paper will explore the need for a system to compile and distribute information on state use of natural resources data, as well as strategies for a phased implementation of the system. A single system serving state governments might include the following services: a dynamic index of state and federal sources for environmental data—especially new types of data; a network of key individuals and organizations with expertise in data handling and analysis; and a mechanism to arrange technical assistance between states.

Exchange of Information

Keeping states informed of policy issues and new technical developments related to natural resources data is an important objective of this project. In addition to circulating information items concerning NASA and other federal programs, CSPA will provide the following:

- Newsletters. Existing newsletters published by NGA and CSPA will be used to reach constituent state officials at least quarterly. Other distribution channels to states also will be explored to reach as many state officials as possible.

- Policy Users Brochure. Policy issues that surfaced as states have learned to use Landsat technology in various natural resources programs will be outlined in a pamphlet designed for use by Governors, other state officials and policy staff. Topic areas important to states include the following: information systems for handling Landsat data, costs and cost-savings associated with the new technology, staff development and training opportunities (or lack of them), as well as the opportunity for fresh perspectives on old problems that can only be provided by new types of data.

Forum on State Use of Natural Resources Data

With budget tightening at the federal and state level, states have become more concerned with improving their ability to use cost-effectively all types of natural resources data, including Landsat, in existing management programs. There is also a widespread opinion among states that federal natural resources data policies and collection procedures could be better coordinated with the needs and interests of states. Accordingly, CSPA with the guidance of the Earth Resources Data Council and NGA's Committee on Natural Resources and Environmental Management will be representing the states in discussions with federal agencies on various natural resources data issues. As the need develops from these activities, CSPA will sponsor workshops or use other appropriate means to consolidate state views on various data issues and to provide technical assistance to states.

This project is designed to enhance state-federal data coordination efforts and to assist states in improving their capability to use natural resources data in support of state programs. For further information concerning this project, please contact Peggy Harwood, CSPA's Staff Associate for Natural Resources at (202) 624-7727.

Robert N. Wise

Robert N. Wise
Staff Director
Council of State Planning Agencies

CSPA's President, in consultation with the Chairman of NGA's Committee on Natural Resources and Environmental Management, recently appointed the Earth Resources Data Council to oversee the project. The Council's members include:

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